# Appendix J. Regulatory Environment

## 1. General

**National Environmental Policy Act.** This legislation established a national policy to maintain conditions under which people and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans. NEPA established the Council on Environmental Quality (CEQ) to coordinate environmental matters at the Federal level and advise the President on such matters. The law requires all Federal actions that could result in a significant impact on the environment to be subject to review by Federal, tribal, State, and local environmental authorities, as well as affected parties and interested citizens.

**Federal Land Policy and Management Act.** The FLPMA of 1976 establishes the authority and provides guidance for how public lands are to be managed by the BLM. It defines BLM's mission to manage public lands on the basis of multiple use and sustained yield. The FLPMA requires that the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values be protected. It directs the BLM to develop and revise land use plans as needed for the management of public lands.

In order to implement the FLPMA, the BLM developed a Land Use Planning Handbook (H-1601-1) and NEPA Handbook (H-1790-1) that provide guidance on the requirements of the FLPMA, BLM's Planning Regulations (43 CFR 1600), and NEPA. The handbooks direct the BLM in preparing new RMPs, plan revisions, plan amendments, other equivalent plans (e.g., plans adopted from other agencies), and subsequent implementation-level plans. Procedures and requirements are set forth to ensure that the BLM's plans meet regulatory and statutory requirements. To the extent possible, this guidance integrates land use planning requirements with requirements under NEPA.

**Mineral Leasing Act.** The Mineral Leasing Act of 1920, as amended, gives the BLM the responsibility for oil and gas leasing on about 564 million acres of BLM, national forest, and other Federal lands, as well as State and private surface lands where mineral rights have been retained by the Federal government. As such, the BLM reviews and approves permits and licenses from companies to explore, develop, and produce oil and gas resources on both Federal and Native American lands. The BLM is also responsible for inspection and enforcement of oil, gas, and other development operations to ensure that lessees and operators comply with the lease requirements and BLM's operating regulations.

**California Laws for Conservation of Petroleum and Gas (Public Resources Code [PRC] Division 3, Chapter 1).** The California Laws for the Conservation of Petroleum and Gas, codified in 1939, as amended, stipulate the consolidated State laws related to natural resources and their related conservation, utilization, and supervision, including petroleum resources on non-Federal lands.

**California Code of Regulations (CCR) Title 14, Division 2, Chapters 2 through 4 (Title 14)**. CCR Title 14, Division 2, Chapters 2 through 4 (Title 14) provide the implementing regulations for PRC Division 3 on non-Federal lands. Title 14 and PRC Division 3 mandate the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) to supervise the drilling, operation, maintenance and abandonment of oil, gas and geothermal wells within California.

**Senate Bill 4.** Senate Bill (SB) 4 was passed into law on September 20, 2013, and amended multiple sections of the Public Resources Code and the Water Code of California. SB 4 defines multiple terms used in well stimulation treatment that include hydraulic fracturing and acid well stimulation. SB 4 creates a permitting system and requires operators to comply with public disclosure requirements and neighbor notification. It also builds in water testing and monitoring components for surface and groundwater near the fracturing treatment site.

BLM California's 2012 Memorandum of Understanding with the California Department of Conservation encourages and facilitates sharing information and combining resources where possible. BLM California and the State of California have agreed to cooperatively implement oil and gas field regulations on Federal mineral estate to the extent they are applicable. A summary of SB 4 regulations is provided in Table J-1.

**Table J-1. Summary of Senate Bill 4 Regulations**

| Subject | California SB 4 Regulations |
|---|---|
| Covered operations | Rules apply to hydraulic fracturing and any other well stimulation treatment designed to enhance the permeability of the formation. Data collected regarding all uses of acid and bottomhole pressures that are applied to the formation above pore pressure. |
| Permit application requirements | Information must be provided regarding the treatment design, the surrounding geology, known faults in the area of the treatment, and other wells in the area of the treatment. Application must demonstrate that there will be geologic and hydrologic isolation of the oil and gas formation during and following treatment. |
| Permit grouping | Procedures exist for submitting applications in batches, but each individual permit is still subject to equal scrutiny. |
| Neighbor notification | The operator must notify neighboring surface property owners and provide them with a copy of the approved treatment permit at least 30 days before treatment is commenced. At the property owner's request, the operator must pay for testing of water wells or surface water before and after treatment. |
| Groundwater monitoring | Groundwater monitoring must be done on a well-specific, field-wide, or regional basis. Groundwater monitoring plans are subject to review and approval by the State Water Resources Control Board. |
| Pressure testing of well prior to treatment | The well must be pressure tested to at least 100% of the maximum surface pressure anticipated during treatment. Pressure must hold for at least 30 minutes with no more than 10% pressure change. The Division must be provided opportunity to witness pressure testing. |
| Pressure testing of surface equipment prior to treatment | Surface equipment must be pressure tested at a pressure equal to 125% of the maximum surface pressure anticipated during treatment, but not greater than the manufacturer's pressure rating for the equipment being tested. |
| Cement evaluation | Cement evaluation must be done to demonstrate that cement will ensure the geologic and hydrologic isolation of the oil and gas formation during and after treatment. |
| Monitoring during treatment | Pressures must be monitored and recorded during treatment. If pressure changes by more than 20% than the calculated pressure increase or exceeds 90% of the casing yield rating, then treatment must stop and immediate action must be taken. |
| Monitoring after treatment | Production pressure and annular pressure must be periodically monitored for indication of well breach for the life of the well. |
| Prevention of "Frack Hits" | A review of all geologic features, including known faults (active or inactive), within five times the axial dimensional stimulation area. |
| Monitoring for seismic activity | The operator must monitor the California Integrated Seismic Network for ten days after the end of hydraulic fracturing. If there is an earthquake of magnitude 2.7 or greater in five times the area of treatment then treatment operations must halt while evaluation is done. |
| Management of recovered fluids | Recovered and produced fluids must be stored in containers[1] and cannot be stored in sumps or pits. |

**Table J-1. Summary of Senate Bill 4 Regulations**

| Subject | California SB 4 Regulations |
|---|---|
| Public disclosure | Within 60 days after treatment, the operator must publicly disclose detailed information about the treatment, including the identity and concentration of the additives and the maximum concentration of each and every constituent in the fluids used. |
| Trade secret claims | Trade secret information must be publicly disclosed, with very limited exception. |
| Water Supply Information | Source and location of water supply is required as part of a water management plan and as part of post-treatment public disclosures. |

1 - California's regulations do not specifically include a requirement for containers to be enclosed.

**Porter-Cologne Water Quality Control Act.** The Porter-Cologne Act also known as the California Water Code, Section 7 was created in 1969 and is the law that governs the water quality regulation in California. It was established to be a program to protect the water quality as well as the beneficial uses of water. This act applies to surface water, groundwater, wetlands and both point and nonpoint sources of pollution. There are nine regional water boards and one state water board that has resulted from this act. The act requires the adoption of water quality control plans that contain the guiding policies of water pollution management in California.

**Clean Air Act.** The Federal Clean Air Act (CAA) of 1970, 42 United States Code (USC) 7401 et seq., as amended in 1977 and 1990, including the New Source Review (NSR) facility permitting programs applicable to construction or modification of specified stationary sources, New Source Performance Standards, and National Emission Standards for Hazardous Air Pollutants promulgated under the authority of the Federal CAA. The U.S. Environmental Protection Agency (EPA), California Air Resources Board (ARB), and local air districts work together to classify each area as attainment, unclassified, or nonattainment depending on the historical levels of contaminants measured in the ambient air and the history of pollutants occurring at levels that do not attain the standards. Local air districts are responsible for developing an air quality management plan (AQMP) or clean air plan (CAP) where necessary to attain the California air quality standards, while the ARB develops and implements statewide air pollution control plans to achieve and maintain the national air quality standards, known as the State Implementation Plan (SIP).

**National Historic Preservation Act.** The National Historic Preservation Act (NHPA) is the primary Federal law providing for the protection and preservation of cultural resources. The NHPA established the National Register of Historic Places, the Advisory Council on Historic Preservation, and the State Office of Historic Preservation.

**Native American Consultation per Executive Orders 12866, 13084, et seq.** Executive Order 13084 establishes requirements for meaningful consultation and collaboration with Indian tribal governments in the development of regulatory practices on Federal matters that significantly or uniquely affect their communities. Executive Order 12866 is intended to enhance planning and coordination with respect to both new and existing regulations and to make the process more accessible and open to the public.

**Endangered Species Act.** Management activities on private and public lands are subject to the Federal Endangered Species Act of 1973 (ESA), as amended. The ESA directs project proponents or government agencies, as appropriate, to consult with the U.S. Fish and Wildlife Service (USFWS) and/or National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries) to address the effects of management activities on threatened and endangered species and designated critical habitats.

**Migratory Bird Treaty Act.** The Migratory Bird Treaty Act (MBTA) is the domestic law that implements the United States' commitment to four international conventions (with Canada, Japan, Mexico, and Russia) for the protection of a shared migratory bird resource. The MBTA is implemented by the USFWS.

# 2. Energy and Minerals

The BLM manages oil and gas leases under Title 43 CFR, Part 3100, and geophysical exploration is covered under Part 3150. Geothermal leasing is managed under Part 3200, mineral materials under Part 3600, mining claims and related surface disturbance for locatable minerals under Part 3800, and solid leasable minerals, other than coal or oil shale, under Part 3500.

The BLM administers three different programs (Mining Law, Mineral Leasing–Solid and Fluid Minerals, and Mineral Materials) in California that allow companies to produce solid and fluid minerals from the public land. The programs are based on laws that address how certain types of minerals can be developed. The most significant laws for mineral disposal are:

- The General Mining Law of 1872, as amended covering all minerals not specifically addressed under the Mineral Leasing Act of 1920, as amended; the Materials Act of 1947, as amended, and the Mineral Leasing Act for Acquired Lands of 1947, as amended;
- The Mineral Leasing Act of 1920, as amended covering coal, phosphate, oil, oil shale or gas, and sodium – on public land;
- The Materials Act of 1947, as amended covering sand, gravel, and other common materials; and
- The Mineral Leasing Act for Acquired Lands of 1947, as amended covering soda ash, potash, sodium sulfate, and salt, on public land.

Many significant laws important to solid mineral development have amended the key mineral disposal statutes listed above. Other laws governing the management of the public land and the protection of the environment include:

- The Federal Land Policy and Management Act of 1976,
- The National Environmental Policy Act of 1969,
- The Endangered Species Act of 1973, and
- The Clean Water Act.

The 1920 Mineral Leasing Act governs the leasing of oil and gas resources and applies to all federally owned minerals. The Mineral Leasing Act provides that all of these lands are open to oil and gas leasing unless a specific order has been issued to close the area to leasing.

BLM holds lease sales of the oil and gas resources in accordance with the Federal Onshore Oil and Gas Leasing Reform Act. Subject to the stipulations outlined in this Plan Amendment, BMPs, standard terms and conditions of the lease, an oil and gas lease gives the lessee the exclusive right to extract the resource and to occupy the appropriate size area necessary for extraction. The lessee may conduct activities necessary to develop and produce oil and gas from the lease area, including drilling wells, building roads, and constructing pipelines and related facilities. Although the initial lease term is 10 years, the lease shall be extended as long as the lessee demonstrates that the lease is capable of producing oil or gas in paying quantities. Extended leases are considered "held by production." Unleased parcels, or parcels for which the term has expired without development, may be requested by the oil and gas industry for inclusion in a new lease sale. Once leases are no longer productive, the lessee is required to properly plug and abandon all wells and restore the lease.

BLM, together with DOGGR, oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells. Applicable Federal regulations include 43 CFR 3160, Onshore Oil and Gas Operations, which are administered by the BLM and govern operations associated with the exploration, development and production of oil and gas deposits from leases issued or approved by the U.S., restricted Indian land leases and those under the jurisdiction of the Secretary of the Interior by law or administrative arrangement. The BLM Onshore Oil and Gas Orders and Notices to Lessee (NTL) imple-

ment and supplement the oil and gas regulations in 43 CFR 3160 for conducting oil and gas operations on Federal and Indian lands. They include the following:

- Order No. 1 – Approval of Operations provides procedures for submitting an Application for Permit to Drill and all required approvals of subsequent well operations and other lease operations.
- Order No. 2 – Drilling provides requirements and standards for drilling and abandonment.
- Order No. 3 (Replaced by 43 CFR 3173 in 2017) – Site Security provides requirements and standards for site security.
- Order No. 4 (Replaced by 43 CFR 3174 in 2017) – Measurement of Oil provides requirements and standards for measurement of oil.
- Order No. 5 (Replaced by 43 CFR 3175 in 2017)– Measures of Gas provides requirements and standards for measurement of gas.
- Order No. 6 – Hydrogen Sulfide Operations provides the requirements and standards for conducting oil and gas operations in an environment known to or expected to contain hydrogen sulfide gas.
- Order No. 7 – Disposal of Produced Waters provides the methods and approvals necessary to dispose of produced water associated with oil and gas operations.
- NTL-3A - Reporting of Undesirable Events requires the reporting within 24 hours of all major undesirable events upon discovery by the BLM, the operator, or the public.

Approval for the technical and downhole work is done for most activities by the BLM Bakersfield Field Office, while review and approval of the surface use is conducted by the multi-resources staff located in the BLM Central Coast Field Office. Approval for downhole Underground Injection Control (UIC) activities, including all injection well activities, is performed by DOGGR under primacy that was granted by the Federal government in 1982. Applicable state regulations include California Public Resources Code, Division 3, which governs the regulation of oil and gas operations; and California Code of Regulations Title 14, Division 2, Chapter 4: Development, Regulation, and Conservation of Oil and Gas Resources.

## State

California's State and Surface Mining and Reclamation Act (SMARA) of 1975 was enacted in response to land use conflicts between essential mineral production and land development for other purposes. The stated purpose of SMARA is to provide a comprehensive surface mining and reclamation policy that will encourage the production and conservation of mineral resources while ensuring that adverse environmental effects of mining are prevented or minimized; that mined lands are reclaimed to a usable condition; and residual hazards to public health and safety are eliminated; and consideration is given to recreation, watershed, wildlife, aesthetic, and other related values.

DOGGR's regulatory authority is not limited to private lands. DOGGR regulates all onshore and offshore oil, gas, and geothermal resources within the State of California on federal, state, and private lands, to the extent that State regulations are consistent with Federal law and Federal lease rights. DOGGR requirements in preparation of environmental documents under the California Environmental Quality Act are defined in CCR, Title 14, Division 2, Chapter 2. DOGGR well regulations, which are defined in CCR, Title 14, Division 2, Chapter 4, include well design and construction standards, surface production equipment and pipeline requirements, and idle well procedures and guidelines. "Idle well" means any well that has had 24 consecutive months of either not producing oil or natural gas or not producing water to be used in production stimulation, enhanced oil recovery, or reservoir pressure management or for injection. DOGGR regulates idles wells to ensure effectiveness in preventing migration of oil and gas from a producing zone to shallower zones, including potable groundwater zones. DOGGR oversees well operations. DOGGR also has regulatory authority over Class II injection wells for enhanced recovery and disposal. In California, the operation

of all Class II injection wells is regulated by DOGGR, under provisions of CCR Sections 1724.6, 1724.7, 1724.9 and 1724.10, and the Federal Safe Drinking Water Act. When an operator ceases well operation or production, State law requires the well is properly plugged and abandoned within a reasonable time period.

# 3. Geology

## Federal

**Mineral Leasing Act.** The Mineral Leasing Act of 1920, as amended, gives the BLM the responsibility for oil and gas leasing on about 564 million acres of BLM, national forest, and other Federal lands, as well as State and private surface lands where mineral rights have been retained by the Federal government, for a total of 700 million acres of mineral estate. As such, the BLM reviews and approves permits and licenses from companies to explore, develop, and produce oil and gas resources on both Federal and Native American lands. The BLM is responsible for inspection and enforcement of oil, gas, and other development operations to ensure that lessees and operators comply with the lease requirements and BLM's regulations, Onshore Orders, and Notices to Lessees.

**Bureau of Land Management: Onshore Oil and Gas Operations (43 CFR Part 3160 et seq.** and Onshore Oil and Gas Orders 1, 2 and 7)**.** Regulations administered by the BLM to govern oil and gas operations require that operators conduct operations in a manner which protects the mineral resources, other natural resources, and environmental quality. Before approving any application for permit to drill, the BLM evaluates and considers environmental impacts. BLM has strict standards for well construction and design, well abandonment operations, and safety requirements. As part of BLM's oversight responsibilities, operators are required to exercise care and diligence to assure that leasehold operations would not result in undue damage to surface or subsurface resources or surface improvements. All produced water must be disposed of by injection into the subsurface, storage in sealed containers, or by other methods which have been approved by the authorized officer. Upon the conclusion of operations, the operator must reclaim the disturbed surface in a manner approved or reasonably prescribed by the BLM. Spills or leakages of oil, gas, produced water, toxic liquids, or waste materials, and blowouts are reported to the BLM. Operators are required to control and remove pollutants that could affect surface waters. Federal regulations require operators to maintain and provide detailed copies of all drilling, production, and abandonment activities conducted on Federal mineral estate, and for California those operational records are maintained in the BLM Bakersfield Field Office.

**Earthquake Hazards Reduction Act.** The Earthquake Hazards Reduction Act (EHRA) of 1977 established the National Earthquake Hazards Reduction Program (NEHRP) as a long-term earthquake risk reduction program for the United States. The four basic NEHRP goals are: develop effective practices and policies for earthquake loss reduction and accelerate their implementation; improve techniques for reducing earthquake vulnerabilities of facilities and systems; improve earthquake hazards identification and risk assessment methods, and their use; and improve the understanding of earthquakes and their effects. There are four Federal agencies participating in NEHRP: the Federal Emergency Management Agency (FEMA), the National Institute of Standards and Technology (NITS), the National Science Foundation (NSF), and the U.S. Geological Survey (USGS) (NEHRP, 2015).

**Clean Water Act/National Pollutant Discharge Elimination System.** Stormwater runoff from construction activities can have a significant impact on water quality. As stormwater flows over a construction site, it picks up pollutants like sediment, debris, and chemicals. Polluted stormwater runoff can harm or kill fish and other wildlife. Sedimentation can destroy aquatic habitat and high volumes of runoff can cause stream bank erosion. Under the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) Stormwater program requires operators of construction sites 1 acre or larger (including smaller sites that are part of a larger common plan of development) to obtain authorization to discharge stormwater under a

NPDES construction stormwater permit and the development. Implementation of stormwater pollution prevention plans (SWPPPs) is the focus of NPDES stormwater permits for regulated construction activities.

Most states are authorized by the EPA to implement the Stormwater NPDES permitting program. Project operators must meet the requirements of the EPA Construction General Permit (CGP). In California, Stormwater NPDES permits on non-tribal and non-Federal land are overseen by the State of California EPA (CalEPA). As stated by the California State Water Resource Control Board (SWRCB), a SWPPP should be prepared for each project involving more than 1 acre of ground disturbance. The SWPPP must list Best Management Practices (BMPs) the discharger will use to protect stormwater runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for non-visible pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body.

**Federal Safe Drinking Water Act.** According to EPA regulations, produced water injection wells are classified as Class II wells, and subdivided into II-R wells for enhanced recovery and II-D wells for disposal. In California, the operation of all Class II injection wells are regulated by DOGGR, under provisions of CCR Sections 1724.6, 1724.7, 1724.9 and 1724.10, and the Federal Safe Drinking Water Act. Under a Primacy Agreement with the EPA, DOGGR has oversight over Class II underground injection in California.

## State

On public lands, including those covered by the RMPA, oil and gas operators must comply with both Federal and State statutes and regulations to the extent that State regulations are consistent with Federal law and Federal lease rights.

**Alquist-Priolo Earthquake Fault Zoning Act, PRC, Section 2621–2630.** The Alquist-Priolo Earthquake Fault Zoning Act (APEFZA) of 1972 (formerly the Special Studies Zoning Act) regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. While this Act does not specifically regulate development of facilities such as oil fields and pipelines, it does help define areas where fault rupture is most likely to occur. Faults that display evidence of rupture within Holocene time are considered "active." A fault must be shown to be "sufficiently active" and "well defined" by detailed site-specific geologic explorations in order to determine whether building setbacks or other mitigation measures should be established.

**Seismic Hazards Mapping Act, PRC, Section 2690–2699.** The Seismic Hazards Mapping Act (SHMA) of 1990 directs the California Department of Conservation, California Geological Survey (CGS), to delineate Seismic Hazard Zones. The purpose of the Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards to buildings intended for human occupancy. Seismic Hazard Zone maps created under this act are available for select quadrangles throughout California and pertain to liquefaction hazards and earthquake-induced landslide hazards. Cities, counties, and State agencies are directed to use seismic hazard zone maps developed by CGS, where available, in their land-use planning and permitting processes. The Act requires that site-specific geotechnical investigations be performed prior to permitting applicable projects within seismic hazard zones.

**California Building Code.** The California Building Code, Title 24, Part 2 (2016) provides building codes and standards for design and construction of structures in California, and may be relevant to the geology and soils within the project. The 2016 CBC is based on the 2015 International Building Code with the addition of more extensive structural seismic provisions. Certain facilities for the project may be subject to the requirements of Chapters 16 and 18 of the CBC, which contain provisions for soil lateral loads, earthquake loads, geotechnical investigations, excavations, grading, fill, and foundations. Chapter 33 of the

CBC contains requirements for safeguards during construction that may apply to grading for new facilities. Appendix J of the CBC contains requirements for grading.

**California Geological Survey.** The CGS, formerly known as the California Division of Mines & Geology, provides scientific products and services regarding the State's geology, seismology and mineral resources that affect the health, safety, and business interests of the people of California. Their Seismic Hazards Program (SHP) provides technical information and advice to the Division of the State Architect (DSA) and the Office of Statewide Health, Planning, and Development (OSHPD) regarding geologic hazards. The Building Official for public schools is the Division of the State Architect (DSA). Hospitals and Skilled Nursing Facilities in California are under the jurisdiction of the Office of Statewide Health Planning & Development (OSHPD). CGS serves under contract with these two State agencies. The Seismic Hazards Program (SHP) provides technical information and advice regarding geologic hazards to local jurisdictions to aid in the preparation of environmental review documents and/or the hazard element of a given region's general plan.

**California Division of Oil, Gas, and Geothermal Resources.** DOGGR regulates production of oil and gas, as well as geothermal resources, within the State of California. DOGGR requirements in preparation of environmental documents under CEQA are defined in CCR, Title 14, Division 2, Chapter 2. DOGGR regulations, which are defined in CCR, Title 14, Division 2, Chapter 4, include well design and construction standards, surface production equipment and pipeline requirements, and well abandonment procedures and guidelines. DOGGR regulates well abandonment procedures to ensure effectiveness in preventing migration of oil and gas from a producing zone to shallower zones, including potable groundwater zones. DOGGR oversees well operations. DOGGR also has regulatory authority over Class II injection wells for enhanced recovery and disposal. In California, the operation of all Class II injection wells are regulated by DOGGR, under provisions of CCR Sections 1724.6, 1724.7, 1724.9 and 1724.10, and the Federal Safe Drinking Water Act. When an operator ceases well operation or production, State law requires the well is abandoned within a reasonable time period. Regulations require well operators to maintain detailed records of abandonment operations and file copies with the DOGGR. In addition, DOGGR regulates environmentally sensitive pipelines and production facilities, which are defined under CCR Title 14, Sections 1760(e), 1760(j), and 1760(k).

Under Senate Bill 4, well stimulation, including hydraulic fracturing; stimulation fluid constituents; and anticipated recovered fluid disposal are regulated under 14 CCR Sections 1780 through 1790. Currently, DOGGR is not regulating chemicals used in stimulation fluids. Oil and gas developers are required to comply with DOGGR's Well Stimulation Treatment Regulations, Section 1785.1, to monitor and cease hydraulic fracturing activities if an earthquake of Magnitude 2.7 or greater occurs within a radius of five times the maximum axial dimensional stimulation area (ADSA) (DOC, 2015).

## Local

City and county planning and building departments may have requirements for geotechnical and engineering geology investigations for hillside projects requiring grading and slope stability analysis. City and County General Plans are required to have a "safety element" that is intended to protect the community by identifying seismic hazards, (seismically induced surface rupture, ground shaking, and ground failure), and other geologic hazards including landslides and potentially unstable slopes.

Local jurisdictions typically regulate construction activities through a process that may require the preparation of a site-specific geotechnical investigation, as required in the CBC, Title 24, Part 2, Chapter 18. The purpose of a site-specific geotechnical investigation is to provide a geologic basis for the development of appropriate construction design. Geotechnical investigations typically assess bedrock and Quaternary geology, geologic structure, soils, and the previous history of excavation and fill placement. Proponents of specific improvements in the project that require design of earthworks and foundations for proposed struc-

tures will need to prepare geotechnical investigations on the physical properties of soil and rock at the site prior to project design.

Many counties and cities in the CCFO Planning Area have grading and erosion control ordinances. These ordinances are intended to control erosion and sedimentation caused by construction activities. A grading permit is typically required for construction-related projects. As part of the permit, applicants usually must submit a grading and erosion control plan, vicinity and site maps, and other supplemental information. Standard conditions in the grading permit include a description of SWPPP related BMPs.

# 4. Hazardous Materials and Public Safety

This section gives an overview of the Federal and State programs and regulations affecting hazardous materials generation, transportation, treatment, storage, and disposal, and for worker and public safety related to the risk of upset. Definitions of terms and details on the various regulatory programs appear in this section.

## Types of Hazardous Substances

Hazardous substances are defined by Federal and State regulations that aim to protect public health and the environment. Hazardous materials have certain chemical, physical, or infectious properties that cause them to be considered hazardous. Hazardous substances are defined in the Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 101(14), and also in the CCR, Title 22, Chapter 11, Article 2, Section 66260 et seq.

In the Hazardous Materials and Public Safety analysis, chemicals mobilized and/or used at a site and released to the environment may result in their being considered a hazardous waste if the level of contamination exceeds specific CCR Title 22 criteria or criteria defined in CERCLA or other relevant Federal regulations. California has similar laws and regulations for the handling, storage, and discovery of hazardous substances, as well as cleanup and disposal of hazardous materials and wastes. Cleanup and safe removal/disposal of hazardous wastes, including contaminated soil from prior oil production activities can be required if excavation of these materials becomes required. Even if soils or groundwater at a contaminated site do not have the characteristics required to be defined as hazardous wastes, remediation of the site may be required by regulatory agencies subject to jurisdictional authority. Cleanup requirements are determined on a case-by-case basis by the agency taking lead jurisdiction.

## Overview of Federal Regulations

The Federal Toxic Substances Control Act of 1976 and the Resource Conservation and Recovery Act (RCRA) established a program administered by the U.S. EPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by HSWA.

CERCLA, including the Superfund program, was enacted by Congress on December 11, 1980. This law provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enabled the revision of the National Oil and Hazardous Substances Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants, spill contain-

ment, and cleanup. The NCP also established the National Priorities List. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986.

The Spill Prevention, Control and Countermeasures Plan (SPCC) requires facilities that store, handle, or produce significant quantities of hazardous material to prepare plan to ensure that containment and countermeasures are in place to prevent release of hazardous materials to the environment.

### Federal Hazardous Liquid Pipeline Safety Act

Hazardous liquid pipelines are under the jurisdiction of the U.S. Department of Transportation (USDOT) and must follow the regulations in 49 CFR Part 195, Transportation of Hazardous Liquids by Pipeline, as authorized by the Hazardous Liquid Pipeline Safety Act of 1979 (49 USC Sections 60101–60133). Other important Federal requirements are contained in 40 CFR Parts 109, 110, 112, and 113, which pertain to the need for Oil SPCC Plans and were promulgated in response to the Oil Pollution Act of 1990, as well as the Outer Continental Shelf Lands Act.

**Overview of Requirements in 49 CFR Part 195.** Part 195.3 incorporates many of the applicable national safety standards of the:

- American Petroleum Institute (API)
- American Society of Mechanical Engineers (ASME)
- American National Standards Institute (ANSI)
- American Society for Testing and Materials (ASTM)

Part 195.49 requires, beginning no later than June 15, 2005, that each operator must annually complete and submit to the USDOT's Pipeline and Hazardous Materials Safety Administration (PHMSA) form PHMSA F 7000–1.1 for each type of hazardous liquid pipeline facility operated at the end of the previous year. A separate report is required for crude oil, highly volatile liquids (HVL) including anhydrous ammonia, petroleum products, carbon dioxide pipelines, and fuel grade ethanol pipelines.

Part 195.50, amended in 2002, requires reporting of accidents by telephone and in writing for:

- Explosion or fire not intentionally set by operator.
- Spills of greater than 5 gallons of a hazardous liquid, or 5 barrels if associated with a maintenance activity that meets four criteria (including confinement to company property and immediate clean-up).
- Death or serious injury of a person requiring hospitalization.
- Damage to property of operator or others, greater than $50,000, including clean-up costs.

The Part 195.100 series includes design requirements for the temperature environment, variations in pressure, internal design pressure for pipe specifications, external pressure and external loads, new and used pipe, valves, fittings, and flanges.

The Part 195.200 series highlights construction requirements for standards such as compliance, inspections, welding, siting and routing, bending, welding and welders, inspection and nondestructive testing of welds, external corrosion protection and cathodic protection, installing in ditch and covering, clearances and crossings, valves, pumping, breakout tanks, and construction records.

The Part 195.300 series indicates the minimum requirements for hydrostatic testing, compliance dates, test pressures and duration, test medium, and records.

The Part 195.400 series specifies minimum requirements for operating and maintaining steel pipeline systems, including:

- Correction of unsafe conditions within a reasonable time
- Procedural manual for operations, maintenance, and emergencies

- Emergency Response Training
- Maps and Records
- Maximum operating pressure
- Communication system
- Cathodic protection system
- External and internal corrosion control
- Continued evaluation and assessment to maintain pipeline integrity (including method and test interval)
- Valve maintenance
- Pipeline repairs
- Overpressure safety devices
- Firefighting equipment
- Public education program for hazardous liquid pipeline emergencies and reporting

**Overview of Requirements in 40 CFR Parts 109, 110, 112, 113, and 146.5.** The SPCC plan requirements covered in these regulatory programs applies to oil storage and transportation facilities and terminals, tank farms, bulk plants, oil refineries, and production facilities, as well as bulk oil consumers such as apartment houses, office buildings, schools, hospitals, farms, and State and Federal facilities.

Part 109 establishes the minimum criteria for developing oil removal contingency plans for certain inland navigable waters by State, local, and regional agencies in consultation with the regulated community (oil facilities).

Part 110 prohibits discharge of oil such that applicable water quality standards would be violated, or that would cause a film or sheen upon or in the water. These regulations were updated in 1987 to adequately reflect the intent of Congress in Section 311(b)(3) and (4) of the Clean Water Act (CWA).

Part 112 deals with oil spill prevention and preparation of SPCC Plans. These regulations establish procedures, methods, and equipment requirements to prevent the discharge of oil from onshore and offshore facilities into or upon the navigable waters of the United States. Current wording applies these regulations to facilities that are non-transportation-related. These rules should be used by pipeline operators as additional guidelines for the development of oil spill prevention, control and emergency response plans.

Part 113 establishes financial liability limits; however these limits were preempted by the Oil Pollution Act (OPA) of 1990.

40 CFR 146.5 classifies injection wells according to the six types described below:

- ***Class I Injection Wells:***

  1. *Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to inject hazardous waste beneath the lowermost formation containing, within one quarter (1/4) mile of the well bore, an underground source of drinking water.*
  2. *Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water.*
  3. *Radioactive waste disposal wells which inject fluids below the lowermost formation containing an underground source of drinking water within one quarter mile of the well bore.*

- ***Class II Injection Wells. Wells which inject fluids:***

  1. *Which are brought to the surface in connection with conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.*
  2. *For enhanced recovery of oil or natural gas; and*

3. *For storage of hydrocarbons which are liquid at standard temperature and pressure.*

- ***Class III Injection Wells. Wells which inject for extraction of minerals including:***

1. *Mining of sulfur by the Frasch process;*
2. *In situ production of uranium or other metals. This category includes only in-situ production from ore bodies which have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class V.*
3. *Solution mining of salts or potash.*

- ***Class IV Injection Wells:***

1. *Wells used by generators of hazardous waste or of radioactive waste, by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste into a formation which within 0.25 mile of the well contains an underground source of drinking water.*
2. *Wells used by generators of hazardous waste or of radioactive waste, by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste above a formation which within 0.25 mile of the well contains an underground source of drinking water.*
3. *Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to dispose of hazardous waste, which cannot be classified under Section 146.05(a)(1) or Section 146.05(d) (1) and (2), (e.g., wells used to dispose of hazardous wastes into or above a formation which contains an aquifer which has been exempted pursuant to Section 146.04).*

- ***Class V Injection Wells:*** *Injection wells not included in Class I, II, III, IV or VI.*
- ***Class VI Injection Wells:*** *Wells that are not experimental in nature and that are used for geologic sequestration of carbon dioxide beneath the lowermost formation containing a Underground Source of Drinking Water (USDW); or wells used for geologic sequestration of carbon dioxide that have been granted a waiver of the injection depth requirements pursuant to requirements at Section 146.95; or wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to Section 146.4 and 144.7(d) of EPA 40 CFR 146.5.*

**Oil Pollution Act of 1990 OPA. Public Law 101-380, 104 Stat. 484 (August 18, 1990).** In the case of U.S. waters defined by the CWA and the Army Corp of Engineers**,** the Oil Pollution Act of 1990, together with the Oil Pollution Liability and Compensation Act of 1989, builds upon Section 311 of the CWA to create a single Federal law providing cleanup authority, penalties, and liability for oil pollution. The bill creates a single fund to pay for removal of and damages from oil pollution. This newer fund replaces those created under the Trans-Alaska Pipeline Act, Deep Water Port Act of 1974, and Outer Continental Shelf Lands Act, and supersedes the contingency fund established under Section 311 of CWA. The law may also apply if a connection can be established between the location of the spill and a water of the U.S.

The Oil Pollution Act of 1990 establishes the Oil Spill Liability Trust Fund. It makes the responsible party for a vessel or facility from which oil is discharged (or which poses a substantial threat of discharge) liable for removal costs and for economic or natural resource damages, including:

- Injury or loss of real or personal property or natural resources;
- Loss of use (including subsistence use) of natural resources;
- Loss or impairment of income, profits, or earning capacity;
- Loss of Federal and State tax, royalty, rental, or net profits share revenue; and
- Net costs of increased public services as a result of the discharge.

The Oil Spill Liability Trust Fund will be available, up to a limit of $1 billion per incident, for removal costs and compensatory damages. The act provides for liability and availability of the fund to pay removal costs and compensation in case of discharges of oil.

### Hazardous Waste Handling Regulations

RCRA directs the U.S. EPA to develop a comprehensive set of regulations to implement the law. The hazardous waste program, under RCRA Subtitle C, establishes a system for controlling hazardous waste from the time it is generated until its ultimate disposal. 40 CFR Parts 260-273 contain all of the RCRA regulations governing hazardous waste identification, classification, generation, management and disposal. The EPA approved California's program to implement Federal hazardous waste regulations on August 1, 1992.

Under RCRA, the EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. Hazardous waste is a waste with properties that make it dangerous or potentially harmful to human health or the environment. In regulatory terms, RCRA hazardous wastes fall into two categories:

- Listed Wastes, which appear on one of the four hazardous wastes lists established by EPA regulations in 40 CFR Part 261, Subpart D
- Characteristic wastes, which exhibit one or more of four characteristics defined in 40 CFR Part 261, Subpart C

### Hazardous Materials Risk Management

The Clean Air Act Amendments of 1990, Section 112(r) requires EPA to publish regulations and guidance for chemical accident prevention at facilities using substances that posed the greatest risk of harm from accidental releases (40 CFR Part 68). These regulations were built upon existing industry codes and standards and require companies of all sizes that use certain listed regulated flammable and toxic substances to develop a Risk Management Program, including a:

- Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental release scenarios; and
- Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures.

### Transportation of Hazardous Materials

The USDOT issues the Hazardous Materials Regulations (HMR) found in 49 CFR Parts 171-181. These rules govern the transportation of hazardous materials in all modes of transportation: air, highway, rail and water. The Hazardous Materials Transportation Act requires that carriers report accidental releases of hazardous materials to USDOT at the earliest practical moment. Other incidents that must be reported include deaths, injuries requiring hospitalization, and property damage exceeding $50,000.

The Federal Railroad Administration (FRA) is a department within the USDOT. FRA adopts and enforces railroad safety regulations, including regulations relating to track safety, rail equipment, operating practices, and the transport of hazardous materials by rail. Rail facilities, including yard facilities, are inspected by the FRA to ensure compliance with regulations, and those adopted by the PHMSA. PHMSA is another department within the USDOT. Pursuant to the Hazardous Materials Transportation Act, PHMSA adopts regulations governing the transport of hazardous materials by rail, highway, air, and water. The PHMSA regulations are set forth in Chapter I of Subtitle B of 49 CFR (Parts 105 to 199).

The National Transportation Safety Board is an independent Federal agency that reviews transportation accidents, including rail accidents, and makes recommendations to FRA and PHMSA for regulatory changes.

The American Association of Railroads (AAR) is an industry trade association that represents railroads, including the major freight railroads in the United States, Canada, and Mexico. AAR adopts standards for the construction and design of tank cars which, in some cases, are more stringent than the legal requirements set forth in FRA or PHMSA regulations.

The PHMSA regulations classify hazardous materials based on each material's hazardous characteristics. Crude oil is assigned to hazard Class 3, based on specified characteristics of combustibility and flammability (49 CFR 173.120). In 2014, USDOT issued Emergency Order DOT-OST-2014-0025 to address crude oil transport by rail. Among other issues, the Emergency Order requires shippers to assign crude oil to Packing Groups I or II, thereby assuring that Bakken and other highly volatile crude oils cannot be mischaracterized and assigned to Packing Group III. The pertinent PHMSA regulations governing rail transport are summarized as follows:

- 49 CFR 172, Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans, addresses numerous aspects of safe rail transport, including requirements pertaining to the hazardous materials classification of crude oil.
- 49 CFR 173, General Requirements for Shipments and Packages, addresses requirements for bulk packaging including the type of tank car a hazardous material must be transported in.
- 49 CFR 174, Carriage by Rail, specifies handling, loading, and unloading requirements for the safe transport and shipping of hazardous materials, which must be performed by qualified personnel.
- 49 CFR 176, Carriage by Vessel, provides additional details on vessel carriage requirements for different classes of hazardous materials.
- 49 CFR 179, Specifications for Tank Cars, provides construction and design standards requirements for rail tank cars including tank wall thickness, welding certification, tank mounting, pressure relief devices, thermal protection systems, protection of fittings, loading/unloading valve requirements, coupler vertical restraints systems and tank-head puncture-resistance systems.

Federal regulatory agencies and AAR have taken a variety of actions designed to reduce the risk of accidental releases from DOT-111 tank cars, in response to recent rail accidents involving crude oil and ethanol. On May 1, 2015, with a goal of reducing rail transportation risk, the U.S. Department of Transportation issued new rules for railroads hauling crude oil which include the use of sturdier rail cars and new braking systems.

## Worker and Workplace Safety

### *Occupational Safety and Health Act Requirements*

Congress passed the Occupational and Safety Health Act (OSHA) to ensure worker and workplace safety. Their goal was to make sure employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions (along with Cal OSHA in California). OSHA regulations at 29 CFR 1910 contains several standards that describe requirements for the safe management of hazards associated with processes using, storing, manufacturing, handling, or moving highly hazardous chemicals onsite. It emphasizes the management of hazards through an established comprehensive program that integrates technologies, procedures, and management practices, including communication.

- 29 CFR 1910.119 (Subpart H) – Process Safety Management of Highly Hazardous Chemicals
- 29 CFR 1910.120 (Subpart H) – Hazardous waste operations and emergency response.
- 29 CFR 1910 (Subpart N) – Materials Handling and Storage

### *BLM Guidelines and BLM Gold Book*

BLM has spill cleanup guidelines for heavy crude oil releases in California (2002). The guidelines include clean-up of spills on developed surfaces and on undeveloped surfaces and sensitive areas. The guidelines were developed for heavy crude oil spills. Emergency response to releases of light crude oil and other hazardous materials are regulated by 40 CFR Part 300 and corresponding California regulations.

The BLM Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (known as the Gold Book) includes a section regarding pollution control and hazardous wastes including the spill requirements. All spills or leakages of oil, gas, saltwater, toxic liquids or waste materials, blowouts, fires, personal injuries, and fatalities shall be reported by the operator to the BLM and the surface management agency as well as the National Response Center, in accordance with the requirements of Notice to Lessees NTL-3A; Reporting of Undesirable Events, and in accordance with any applicable local requirements.

### *BLM Best Management Practices*

Best Management Practices (BMPs) are those land and resource management techniques designed to maximize beneficial results and minimize negative impacts of management actions. BMPs are defined as methods, measures, or practices selected on the basis of site-specific conditions to provide the most effective, environmentally sound, and economically feasible means of managing an activity and mitigating its impacts. BMPs are identified as part of the NEPA process, with interdisciplinary involvement.

The BMPs that appear in Appendix D are a compilation of existing policies and guidelines and commonly employed practices designed to assist in achieving the objectives for maintaining or minimizing water quality degradation from nonpoint sources, loss of soil productivity, providing guidelines for aesthetic conditions within watersheds, and mitigating impacts to soil, vegetation, or wildlife habitat from surface disturbing activities. BMPs are selected and implemented as necessary, based on site-specific conditions, to meet a variety of resource objectives for specific management actions. Where necessary, additional BMPs or modifications may be identified to minimize the potential for negative impacts when evaluating site-specific management actions through BLM's interdisciplinary process.

The BLM Mineral Exploration and Development BMP (Appendix D 1.6.2) requires that operators obtain all required State and Federal permits for the protection of groundwater and surface water quality. Additional measures to protect water resources that may be included as Conditions of Approval (COAs) are described in Appendix D Section 1.8.2. COAs specifically designed to protect groundwater include zone isolation, general casing depth and cement requirements, pressure testing, casing integrity testing, fluid surveys, and/or wellhead monitoring.

## Overview of State Regulations

The California Hazardous Waste Control Law (HWCL) is administered by CalEPA to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, both the State and Federal laws apply in California. The HWCL lists 791 chemicals and about 300 common materials that may be hazardous; establishes criteria for identifying, packaging and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal and transportation; and identifies some wastes that cannot be disposed of in landfills.

DTSC is a department of CalEPA and is the primary agency in California that regulates hazardous waste, cleans-up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC has authority under RCRA and the California Health and Safety Code (HSC). California's hazardous waste laws and regulations as implemented by DTSC are contained in HSC Division 20, Chapter 6.5, and CCR Title 22, Division 4.5. Activities subject to DTSC oversight include the generation, storage, treatment

and disposal of hazardous waste and regulates cleanup of contaminated sites in the State, including industrial sites with soil and groundwater contamination. Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than Federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337 340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings. On-site oil-field workers and oil-field support workers generally are required to have site-specific hazardous materials/chemical safety training both for preventative and emergency response actions. Such training sometimes is referred to as Hazardous Waste Operations and Emergency Response (HAZWOPER) training. Because some site workers could be exposed to chemicals above the permissible exposure limit (PEL), general site workers must have training covering use of personal protective equipment, respiratory protection, and understanding of hazardous materials and toxicities. General site workers require 40 hours of training plus 24 hours of on the job training with an annual refresher in subsequent years (and within 365 days after the initial training) to maintain valid certification. Site supervisors require the same 40-hour training and 24 hours on the job training plus an additional 8 hours of training as a HAZWOPER Supervisor. Subcontractors who are on the site on an occasional basis but remain outside area(s) where the chemical exposure could be above the PEL, would be trained as Occasional Site workers, requiring 24 hours of training plus 8 hours on the job training. In addition to HAZWOPER, many oil companies have their own worker health and safety training programs. These address risks from releases such as tanks, equipment, and pipeline ruptures and leaks and fire and explosion hazards.

California's Department of Conservation (DOC), DOGGR regulations (California Code of Regulations, Title 14, Section 1722.9) require that oil and gas well operators develop and maintain a spill contingency plan to prevent and respond to unauthorized releases. In addition, secondary containment for any container with hazardous fluids is required (Section 1773.1). The secondary containment requirement does not apply to various conveyance components such as lines, valves, etc. Spill contingency plans must include a list of all chemicals used on a site for which a Safety Data Sheets (SDS) exists.

### California Department of Industrial Relations, Division of Occupational Safety and Health (Cal OSHA)

Cal OSHA protects workers from health and safety hazards on the job through its research and standards, enforcement, and consultation programs, through Title 8.

### California Accidental Release Prevention (CalARP)

The California Accidental Release Prevention is based on the EPA's Risk Management Program, but it made it more stringent for California. Similar to the EPA Risk Management Program, the CalARP is a performance based regulation that has different prevention elements for different program levels. According to the CalARP, stationary sources with more than a threshold quantity of a regulated substance shall be evaluated to determine the potential for and impacts of accidental releases from that covered process.

### California Pipeline Safety Act of 1981

This act gives regulatory jurisdiction to the California State Fire Marshal (CSFM) for the safety of all intrastate hazardous liquid pipelines and all interstate pipelines used for the transportation of hazardous or highly volatile liquid substances. The law establishes the governing rules for interstate pipelines to be the Federal Hazardous Liquid Pipeline Safety Act and Federal pipeline safety regulations.

## Overview of California Pipeline Safety Regulations

The California Government Code (Parts 51010 through 51019.1) provides specific safety requirements that are more stringent than the Federal rules. The requirements that go beyond 49 CFR Part 195 which are required by incorporation include:

- Periodic hydrostatic testing of pipelines, with specific accuracy requirements on leak rate determination.
- Hydrostatic testing by State-certified independent pipeline testing firms.
- Pipeline leak detection.
- Reporting of all leaks required.

Recent amendments require pipelines to include means of leak prevention and cathodic protection, with acceptability to be determined by the State Fire Marshal. All new pipelines must also be designed to accommodate passage of instrumented inspection devices (smart pigs) through the pipeline.

## California Coastal Commission

The California Coastal Act of 1976 (PRC Division 20) created the California Coastal Commission, which is responsible for granting development permits for within the legally defined California Coastal Zone and for determining consistency between Federal and State coastal management programs. Section 30232 of the Coastal Act addresses hazardous material spills and states that "Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur."

Sections 30260, 30262 and 30265 require that adverse environmental effects be mitigated to the maximum extent feasible, that new and expanded oil and gas facilities be consolidated and that platforms not be sited where a substantial hazard to vessel traffic might result from the facility or related operations. Section 30265 finds that pipeline transport of oil is generally both economically feasible and environmentally preferable to other forms of crude oil transport.

## California State Lands Commission (CCR Title 2, Division 3, Chapter 1)

The California State Lands Commission (CSLC) was established in 1938 with authority detailed in PRC Division 6. Title 2, Division 3, Chapter 1 (Articles 1 through 13) addresses the requirements related to leasing and permits, oil and gas operations, mineral resource regulations, and marine terminal regulations. Article 3.4 specifically addresses pollution control, disposal of drilling muds and cuttings and the oil spill contingency plan. Article 3.4 specifically requires the development of an operating manual. Article 3 specifically addresses the operating requirements, such as tankage, laboratory testing, drilling operations and offshore operations. Article 3.2 and 3.3 address specifics related to drilling and production activities.

## California Regulations for Well Stimulation Treatments (Senate Bill 4)

Under existing law, DOGGR in the Department of Conservation, regulates the drilling, operation, maintenance, and abandonment of oil and gas wells and geothermal resources in the State. The State Oil and Gas Supervisor oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells, and the removal or abandonment of tanks and facilities attendant to oil and gas production, including pipelines that are within an oil and gas field, to prevent, as far as possible, damage to life, health, property, and natural resources. Regulations in Title 14 of the CCR under Senate Bill 4 (SB 4) define, among other things, the terms well stimulation treatment, hydraulic fracturing, and hydraulic fracturing fluid. Public disclosures of chemical constituents of well stimulation fluids are also required.

## California Oil Pipeline Environmental Responsibility Act of 1995 (Assembly Bill 1868)

This legislation requires each pipeline corporation qualifying as a public utility that transports crude oil in a public utility oil pipeline system to be strictly liable for any damages incurred by "any injured party which arise out of, or caused by, the discharge or leaking of crude oil or any fraction thereof…." The law only applies to public utility pipelines for which construction would be completed after January 1, 1996, or that part of an existing utility pipeline that is being relocated after the above date and is more than 3 miles in length. The major features of the law include:

- Each pipeline corporation that qualifies as a public utility that transports any crude oil in a public utility oil pipeline system shall be absolutely liable without regard to fault for any damages incurred by any injured party that arise out of, or are caused by, the discharge or leaking of crude oil.
- Damages for which a pipeline corporation is liable under this law are:
  - All costs of response, containment, cleanup, removal, and treatment including monitoring and administration cost.
  - Injury or economic losses resulting from destruction of or injury to, real or personal property.
  - Injury to, destruction of, or loss of, natural resources, including but not limited to, the reasonable cost of rehabilitating wildlife habitat, and other resources and the reasonable cost of assessing that injury, destruction, or loss, in any action brought by the State, county, city, or district.
  - Loss of taxes, royalties, rents, use, or profit shares caused by the injury, destruction, loss, or impairment of use of real property, personal property, or natural resources.
  - Loss of use and enjoyment of natural resources and other public resources or facilities in any action brought by the State, county, city, or district.
- A pipeline corporation shall immediately cleanup all crude oil that leaks or is discharged from a pipeline.
- No pipeline system subject to this law shall be permitted to operate unless the State Fire Marshal certifies that the pipeline corporation demonstrates sufficient financial responsibility to respond to the liability imposed by this section. The minimum financial responsibility required by the State Fire Marshal shall be $750 times the maximum capacity of the pipeline in the number of barrels per day up to a maximum of $100 million per pipeline system, or a maximum of $200 million per multiple pipeline systems. For the Pacific Pipeline, the legislation specifically requires $100 million for the financial responsibility (Section l.h(l)).
- Financial responsibility shall be demonstrated by evidence that is substantially equivalent to that required by regulations issued under Section 8670.37.54 of the Government Code, including insurance, surety bond, letter of credit, guaranty, qualification as a self-insurer, or combination thereof or any other evidence of financial responsibility. The State Fire Marshal shall require the documentation evidencing financial responsibility to be placed on file with that office.
- The State Fire Marshal shall require evidence of financial responsibility to fund post closure cleanup spots. The evidence of financial responsibility shall be 15 percent of the amount of financial responsibility stated above.

## California Oil Spill Prevention and Response

The Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (OSPRA) enacted by the California Legislature in 1990 requires a State oil spill contingency plan to protect marine waters and empowers a deputy director of the California Department of Fish and Wildlife to take steps to prevent, remove, abate, respond, contain and clean up oil spills. Notification of all oil spills in the marine environment, regardless of size, is required to the Office of Emergency Services, which in turn notifies the response agencies. Oil

Spill Contingency Plans must be prepared and implemented. The Act created the Oil Spill Prevention and Administration Fund and the Oil Spill Response Trust Fund. Pipeline operators will pay fees into the first of these funds for pipelines transporting oil into the State across, under, or through marine waters. The Act also directs some authority to the California Coastal Commission.

In 2014, Senate Bill 861 expanded California's Oil Spill Prevention and Response program to cover all statewide surface waters at risk from oil spills from any source, including pipelines and the increasing shipments of oil transported by railroads. Under this law the California Department of Fish and Wildlife Office of Spill Prevention and Response (OSPR) has the authority to implement spill preparedness and response requirements for inland oil spills. This bill applies to areas where there is a thread to State surface waters and includes pipelines, oil wells, railroads, and ships.

### California Code of Regulations (CCR), Title 8

California Code of Regulations Title 8, Section 6533 refers to the following regulations and standards to prevent crude oil and produced gas releases:

- CCR Title 8, Subchapter 7, Article 146 of the General Industry Safety Orders;
- American Society of Mechanical Engineers ASME B31.3 2002, Process Piping;
- ASME B31.4-2002, Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids;
- ASME B31.8-2003, Gas Transmission and Distribution Piping Systems; or American Petroleum Institute (API) 1104, Nineteenth Edition, September 1999, Welding of Pipelines and Related Facilities (including the October 31, 2001 Errata).

Regulations of the Division of Occupational Safety and Health of Cal/OSHA, lists six Title 8 regulations that are applicable with regard to Valley Fever protection:

- 342 – Reporting Work-Connected Fatalities and Serious Injuries
- 3203 – Injury and Illness Prevention
- 5141 – Control of Harmful Exposures
- 5144 – Respiratory Protection
- 14300 – Employer records Log300
- 5145 – Media for Allaying Dusts, Fumes, Mists, Vapors and Gases

### California State Fire Marshal

The California State Fire Marshal (CSFM) exercises safety regulatory jurisdiction over interstate and intrastate pipelines used for the transportation of hazardous or highly volatile liquid substances within California. In 1983, the Pipeline Safety and Enforcement Program was specifically created to administer this effort.

In 1987, CSFM acquired the regulatory responsibility for interstate lines when an agreement was executed with the United States Department of Transportation. In doing so, CSFM became an agent of the USDOT responsible for ensuring that California interstate pipeline operators meet Federal pipeline safety standards. Specifically, interstate pipelines under this agreement are subject to the Federal Pipeline Safety Act (49 USC Chapter 601) and Federal pipeline regulations.

CSFM's responsibility for intrastate lines is covered in the Elder California Pipeline Safety Act of 1981 (Chapter 5.5, California Government Code). The agency's responsibilities are twofold:

- To enforce Federal minimum pipeline safety standards over all regulated interstate hazardous liquid pipelines within California; and
- To enforce Federal minimum pipeline safety standards as well as the Elder California Pipeline Safety Act of 1981 on regulated hazardous liquid intrastate pipelines.

## Other Recognized Industry Codes and Standards

### *Safety and Corrosion Prevention Standards: ASME, NACE, ANSI*

- ASME & ANSI B16.1 Cast Iron Pipe Flanges and Flanged Fittings.
- ASME & ANSI B16.9, Factory-Made Wrought Steel Butt Welding Fittings.
- ASME & ANSI B31.1, Power Piping.
- ASME & ANSI B31.4, "Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids."
- ASME & ANSI B31.8, "Gas Transmission and Distribution Piping Systems."
- NACE Standard RP-01-90, 95, Item No. 530.71 Standard Recommended Practice External Protective Coatings for Joints, Fittings, and Valves on Metallic Underground or Submerged Pipelines and Piping Systems.
- NACE Standard RP-01-6996, Item No. 53002. Standard Recommended Practice Control of External Corrosion on Underground or Submerged Metallic Piping Systems.
- API Guidance Document HF1, Hydraulic Fracturing Operations – Well Construction and Integrity Guidelines, First Edition, October 2009
- API Guidance Document HF3, Practices for Mitigating Surface Impacts Associated with Hydraulic Fracturing, First Edition, January 2011
- API Specification 5B, Specification for Threading, Gauging, and Thread Inspection of Casing, Tubing, and Line Pipe Threads
- API Specification 5CT/ISO 11960, Specification for Casing and Tubing
- API Specification 7K, Specification for Drilling and Well Servicing Equipment
- API Specification 10A/ISO 10426-1, Specification for Cements and Materials for Well Cementing
- API Recommended Practice 10B-2/ISO 10426-2, Recommended Practice for Testing Well Cements
- API Recommended Practice 10D-2/ISO 10427-2, Recommended Practice for Centralizer Placement and Stop Collar Testing
- API Specification 16C, Specification for Choke and Kill Systems
- API Specification 17K, Specification for Bonded Flexible Pipe
- API Technical Report 10TR1, Cement Sheath Evaluation
- API Technical Report 10TR4, Technical Report on Considerations Regarding Selection of Centralizers for Primary Cementing Operations
- API Recommended Practice 49, Recommended Practice for Drilling and Well Servicing Operations Involving Hydrogen Sulfide
- API Standard 53, Blowout Prevention Equipment Systems for Drilling Wells
- API Recommended Practice 65-2, Isolating Potential Flow Zones During Well Construction
- API Recommended Practice 90, Annular Casing Pressure Management for Offshore Wells

### *Fire and Explosion Prevention and Control, National Fire Protection Association (NFPA) Standards*

- NFPA 30 – Flammable and Combustible Liquids Code and Handbook
- NFPA 11 – Foam Extinguishing Systems
- NFPA 12 – A&B Halogenated Extinguishing Agent Systems
- NFPA 15 – Water Spray Fixed Systems
- NFPA 20 – Centrifugal Fire Pumps
- NFPA 70 – National Electrical Code

# 5. Air Quality and Atmospheric Conditions

Federal and State legislation and subsequent regulations to protect ambient air quality include:

The Federal Clean Air Act (CAA) of 1970, 42 United States Code (USC) 7401 et seq., as amended in 1977 and 1990, including the New Source Review (NSR) facility permitting programs applicable to construction or modification of specified stationary sources, New Source Performance Standards, and National Emission Standards for Hazardous Air Pollutants promulgated under the authority of the Federal CAA.

- Code of Federal Regulations (CFR) Title 40, Parts 50-99.
- California Clean Air Act of 1988, including amendments.
- California Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly).
- Local air district rules and regulations promulgated under the Federal CAA or other authorities.

## Criteria Air Pollutants

**Ozone ($O_3$).** Ozone is a colorless, toxic gas. Ozone is one of a number of substances called photochemical oxidants, formed in the atmosphere as a result of the action of ultraviolet sunlight on certain chemicals in the atmosphere. Chemicals that react to form ozone are referred to as precursor emissions, primarily NOx and VOC. NOx is a primary culprit in the formation of both ozone and PM2.5. Ozone forms downwind from the source during the daylight hours. The reaction is accelerated by increased sunlight intensity and temperature. As a result, peak ozone levels are generally reached in the late afternoon during the warmer times of the year. Adverse health effects of ozone include: aggravation of respiratory and cardiovascular diseases; reduced lung function; and increased cough and chest discomfort. Motor vehicle emissions, industrial emissions, and high ambient temperatures that occur in the warmer inland portions of the Planning Area contribute to summertime ozone formation and subsequent violations of the standards. In the coastal areas, ozone concentrations exceed the standards less frequently.

**Particulate Matter (PM).** Particulate matter as an air pollutant consists of finely divided soils or condensable liquids. It includes dust, fly ash, soot, smoke, aerosols, fumes, mists, and vapors that are suspended in the air for extended periods of time. Particles originate from a variety of stationary and mobile sources and may be directly emitted (primary emissions) or formed in the atmosphere secondarily. Anthropogenic PM sources include industrial processes, agricultural operations, combustion of wood and fossil fuels, construction and demolition activities, and airborne entrainment of road dust. Natural sources that contribute to the PM problem include windblown dust and wildfires. Inhalation of PM may also result in exposure to the hazards of naturally occurring asbestos, which can be found in serpentine soils within the CCFO Planning Area (Section 3.4, Hazardous Materials and Public Safety). Secondary PM is formed in the atmosphere from precursor pollutants such as SOx, NOx, VOCs, and ammonia. Control strategies to reduce PM precursor emissions generally have a beneficial impact on reducing ambient PM levels.

**Respirable Particulate Matter (PM10).** PM10 emissions are comprised of airborne particulate material equal to or less than 10 microns and is a mixture of substances including elemental carbon, lead and nickel; compounds such as nitrates, organics and sulfates. PM10 also originates from the complex mixtures of diesel exhaust and soil. Particulate emissions are considered direct when particles are emitted directly from the source. PM10 precursor emissions are emitted as gases that form into particles in the atmosphere downwind from the source. Human activities that contribute to the PM10 emissions include combustion sources such as stack emissions, diesel exhaust, and smoke from prescribed fire and wildfire, fugitive dust sources such as construction and demolition activities, off highway vehicle (OHV) travel and open areas, unpaved public roads and parking lots, industrial activities, and military activities. One of the reasons for concern with PM10 emissions is their adverse effect on human health; PM10 is considered respirable because particles of this size can be easily inhaled into the nose, throat and/or lungs.

Health hazards in the CCFO Planning Area include inhaling airborne dust that may contain the microscopic fungus that causes Valley Fever. The fungus grows in the soil and gets into the air when the ground is broken and soil or dust containing fungal spores becomes airborne. Hazards posed by fugitive dust emissions containing Valley Fever are discussed in more detail in Section 3.4, Hazardous Materials and Public Safety.

**Fine Particulate Matter (PM2.5).** Fine particles equal to or less than 2.5 microns pose a greater threat to human health than PM10 because they can deposit in lungs. PM2.5 consists of chemical compounds that mostly result from fuel combustion processes, although fugitive dust sources are also important contributors. PM2.5 is emitted directly from sources and forms secondarily through the chemical transformation of precursor emissions in the atmosphere. Primary precursor emissions are from the sulfur and nitrogen components of fuel combustion. Secondary PM2.5 accounts much of the ambient PM2.5 especially in inland areas where ammonia is abundant to facilitate conversion of the precursors into airborne particles. Control strategies and programs for reducing PM2.5 target diesel engines, including heavy-duty trucks and off-road equipment, because diesel particulate matter is a toxic air contaminant regulated by the State.

**Carbon Monoxide (CO).** CO can cause significant effects on human health because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea to death. The major sources of carbon monoxide are combustion processes, such as fuel combustion in motor vehicles and industrial processes, agricultural burning, prescribed burning, and wildfires. Motor vehicles and other internal combustion engines are the dominant source of CO emissions in most areas. CO is also created during refuse, agricultural, and wood stove burning, and by some industrial processes. High CO levels develop primarily during winter when periods of light winds combine with ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. CO levels have dramatically declined since the early 1990s when stringent motor vehicle exhaust and clean fuels programs came into effect.

**Sulfur Oxides and Hydrogen Sulfide.** Sulfur is a component of petroleum and natural gas that may be removed during treatment and refining processes. When sulfur is present in a fuel the products of combustion include sulfur dioxide ($SO_2$) and other sulfur oxides (SOx). Sulfur oxides in the atmosphere are precursors to acid rain and PM2.5 formation through the airborne reactions of sulfates into sulfuric acid gas ($H_2SO_4$) and ammonium sulfate. Hydrogen sulfide ($H_2S$) is not a criteria air pollutant, but it is a component of natural gas as well as a byproduct of oil and gas treatment and refining. SOx and $H_2S$ cause breathing difficulties, and $H_2S$ has a distinctive rotten-egg odor easily detected in ambient air at very low concentrations below 0.1 ppm (ARB, 2009).

## Federal Class I Areas

More stringent standards have been established for maintaining air quality and preserving visibility in many designated wilderness areas. Pinnacles National Park and Ventana Wilderness (managed by U.S. Forest Service and including some BLM public lands) have been designated as Federal Class I Areas and granted special air quality protections under Section 162(a) of the Federal Clean Air Act. For Federal Class I Areas, the CAA requires special management to control emissions from major stationary sources within 100 kilometers of the area. Subjected sources must comply with the Prevention of Significant Deterioration (PSD) program to prevent violations of the ambient air quality standards and protect the natural qualities of and visibility in Federal Class I Areas.

All of the existing and active oil and gas fields within the Monterey County, San Benito County, and Fresno County portions of the CCFO Planning Area are within 100 kilometers of the Pinnacles National Park Class I Area, except for marginal portions of those fields along the boundary of Fresno and Kings Counties.

## Hazardous Air Pollutants

Federal standards also exist for categories of sources that emit hazardous air pollutants (HAPs) as defined in Section 112(b) of the Federal CAA (42 USC Section 7412(b)), including HAPs from oil and gas production. In accordance with Title III of the Federal CAA as amended in 1990, the National Emission Standards for Hazardous Air Pollutants set limits on emissions from sources in the defined categories (e.g., Oil and Natural Gas Production, 40 CFR 63, Subpart HH). The specific HAPs that are the greatest concern for potential human health risk from oil and gas production are benzene, ethylbenzene, toluene, and xylenes (known as BTEX) and also formaldehyde and n-hexane. These pollutants are among those subject to the Federal emission standards for oil and gas production facilities (as listed in the appendix to 40 CFR 63, Subpart HH).

In addition to California's ambient air quality standards, the State of California has a long-term program to identify, assess, and control ambient levels of toxic air contaminants (TACs). This program was initiated by passage of the Air Toxics "Hot Spots" Information and Assessment Act of 1987. As the name implies, "hot spots" are localized point-source emissions of air toxics generated by both large and small industrial operations such as mining, oil and gas, manufacturing, and processing. Air Toxic "hot spot" violations are monitored and regulated by the local air districts.

The California Health and Safety Code defines a TAC as an air pollutant which may cause or contribute to an increase in mortality or serious illness, or which may pose a present or potential hazard to human health. There are almost 200 compounds designated in California regulations as TACs (17 CCR Sections 93000-93001). The list of TACs also includes the substances defined in Federal statute as HAPs. Although dangerous and subject to CAAQS, hydrogen sulfide ($H_2S$) is not a TAC or HAP.

## Local Air District Rules and Regulations

Lands managed by BLM CCFO are within the jurisdiction of three local air districts:

- Monterey Bay Unified Air Pollution Control District (MBUAPCD) has jurisdiction within Santa Cruz, San Benito and Monterey Counties.
- San Joaquin Valley Air Pollution Control District (SJVAPCD) has jurisdiction within San Joaquin, Stanislaus, Fresno, and Merced Counties.
- San Francisco Bay Area Air Quality Management District (BAAQMD) has jurisdiction within Alameda, Contra Costa, San Mateo, and Santa Clara Counties.

### *Monterey Bay Unified APCD Rules and Regulations*

Prohibitions in MBUAPCD Regulation IV make all existing activities subject to limitations on visible emissions (MBUAPCD Rule 400) and prohibitions from causing dust or other emissions at a level that constitutes a nuisance (MBUAPCD Rule 402). Requirements for air permits appear in MBUAPCD Regulation II (Permits).

Additional potentially applicable rules include:

- MBUAPCD Rule 404. Sulfur Compounds and Nitrogen Oxides (including boilers, furnaces, or similar fuel burning equipment and $H_2S$ from crude oil production casing gas collection treatment and destruction systems).
- MBUAPCD Rule 412. Sulfur Content of Fuels.
- MBUAPCD Rule 413. Removal of Sulfur Compounds.
- MBUAPCD Rule 417. Storage of Organic Liquids.
- MBUAPCD Rule 420. Effluent Oil Water Separators.
- MBUAPCD Rule 427. Steam Drive Crude Oil Production Wells.

- MBUAPCD Rule 1000. Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants.
- MBUAPCD Rule 1003. Air Toxics Emissions Inventory and Risk Assessments.

#### *San Joaquin Valley APCD Rules and Regulations*

Prohibitions in SJVAPCD Regulation IV make all existing activities subject to limitations on visible emissions (SJVAPCD Rule 4101) and prohibitions from causing dust or other emissions at a level that constitutes a nuisance (SJVAPCD Rule 4102). Requirements for air permits appear in SJVAPCD Regulation II (Permits).

Additional potentially applicable rules include:

- SJVAPCD Rule 2280. Portable Equipment Registration.
- SJVAPCD Rule 4301. Fuel Burning Equipment.
- SJVAPCD Rule 4306. Reduction of NOx from Boilers, Steam Generators, and Heaters.
- SJVAPCD Rule 4311. Flares.
- SJVAPCD Rule 4320. Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters greater than 5.0 MMBtu/hr.
- SJVAPCD Rule 4401. Steam-Enhanced Crude Oil Production Wells.
- SJVAPCD Rule 4402. Crude Oil Production Sumps
- SJVAPCD Rule 4407. In-Situ Combustion Well Vents.
- SJVAPCD Rule 4408. Glycol Dehydration Systems.
- SJVAPCD Rule 4409. Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities Pump and Compressor Seals at Petroleum Refineries and Chemical Plants.
- SJVAPCD Rule 4455. Components at Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants.
- SJVAPCD Rule 4623. Storage of Organic Liquids.
- SJVAPCD Rule 4624. Transfer of Organic Liquids.
- SJVAPCD Rule 4702. Internal Combustion Engines.
- SJVAPCD Rule 4703. Stationary Gas Turbines.
- SJVAPCD Regulation VIII. Fugitive PM10 Prohibitions and Fugitive Dust Rules (Rule 8011, 8021, 8031, 8061, and 8071, etc.).

#### *San Francisco Bay Area AQMD Rules and Regulations*

Prohibitions in BAAQMD Regulation 6, Rule 1 make all existing activities subject to limitations on visible emissions (BAAQMD Rule 6-1-305) and prohibitions from causing dust or other emissions at a level that constitutes an annoyance. Requirements for air permits appear in BAAQMD Regulation 2 (Permits) and for controlling organic compounds during liquids handling and storage are in BAAQMD Regulation 8 (Organic Compounds).

## 6. Climate Change/Greenhouse Gas Emissions

Managing the GHG emissions from oil and gas development occurs within an evolving framework of plans, policies, regulations and goals primarily at the Federal and State levels. The U.S. EPA implements and enforces the requirements of most Federal environmental laws. EPA Region 9 administers Federal air programs in California. The U.S. EPA published a rule, in 2009, for the mandatory reporting of greenhouse gases from large sources, which is referred to as the Greenhouse Gas Reporting Program (GGRP). In general, the threshold for reporting is 25,000 metric tons or more of carbon dioxide equivalent per year, for stationary sources. Details on the GGRP and other related Federal and State regulations and policies are

listed below. Although the Federal government is not required to comply with State plans and policies for GHG emissions, it is the general approach of the BLM to evaluate, where appropriate, the benefits or impacts of proposed actions on relevant State plans, in which to frame the issue and significance of greenhouse gas emissions and global warming.

Some local municipalities and local governments have policies on energy resources as part of local climate action plans. Where a local jurisdiction requires discretionary land use approvals for oil and gas activity, the cities or counties can regulate GHG emissions through the process of compliance with CEQA to require project-specific mitigation of GHG emissions that are not subject to Federal, State, or local air quality management district controls.

## Federal

### *U.S. EPA GHG Mandatory Reporting Program (40 CFR Part 98)*

On October 30, 2009, the EPA published a rule for mandatory reporting of GHG from stationary sources emitting 25,000 or more metric tons of carbon dioxide equivalent ($MTCO_2e$) per year. The regulation at Title 40 Code of Federal Regulations, Part 98, is referred to as the Greenhouse Gas Reporting Program. This rule applies to direct GHG emitters, fossil fuel suppliers, industrial gas suppliers, and facilities that inject carbon dioxide underground for sequestration or other purposes. The program does not require control of GHGs, rather it requires that sources above 25,000 $MTCO_2e$ per year monitor and report emissions and other related data.

The Petroleum and Natural Gas Systems source category of the GHG Reporting Program (40 CFR 98, Subpart W) includes most of the largest emission sources from the petroleum and natural gas industry. The following eight segments comprise the Petroleum and Natural Gas Systems source category.

- Onshore Production: Emissions from onshore production of petroleum and natural gas associated with production wells and related equipment, including GHG emissions from well completions and workovers with hydraulic fracturing (40 CFR 98.232).
- Offshore Production: Production of petroleum and natural gas from offshore production platforms.
- Natural Gas Processing: Processing of field quality gas to produce pipeline quality natural gas.
- Natural Gas Transmission: Compressor stations used to transfer natural gas through transmission pipelines.
- Underground Natural Gas Storage: Facilities that store natural gas in underground formations.
- Natural Gas Distribution: Distribution systems that deliver natural gas to customers.

### *U.S. EPA Federal Clean Air Act*

The U.S. EPA Prevention of Significant Deterioration (PSD) and New Source Review programs under the Federal Clean Air Act (CAA) and implementing regulations (40 CFR Parts 51 & 52) require review of $CO_2$ emission control strategies for any new or modified stationary source that triggers PSD review. The permitting programs are enforced either by the local air quality management district or the U.S. EPA, depending on delegation of authority.

### *U.S. EPA Methane Challenge Program*

The U.S. EPA sponsors the Natural Gas STAR Methane Challenge Program, which is a voluntary program that encourages oil and natural gas companies to commit to and adopt cost-effective technologies and practices to improve operational efficiency and prevent emissions of methane. The program defines protocols for methane control by oil and natural gas production companies that may operate many different facilities. Examples of cost-effective controls include, recovering for beneficial use all associated gas produced from

oil reservoirs, regardless of well type, except for gas produced from wildcat and delineation wells or as a result of system failures and emergencies, and avoiding flaring when gas recovery is feasible.

## State

### *California Governor's Executive Order S-3-05*

The California Governor's Executive Order S-3-05 (June 2005) declares California's particular vulnerability to climate change and sets a target of an 80 percent reduction of California's greenhouse gas emissions from 1990 levels by 2050 and a target to achieve 1990 levels by 2020.

### *California Governor's Executive Order B-16-2012*

Executive Order B-16-2012 (March 2012) specifically focuses on reducing emissions from the vehicle fleet across California and establishes that California shall achieve a target for 2050 of a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels.

### *California Governor's Executive Order B-30-15*

Executive Order B-30-15 (April 2015) establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030.

### *California Global Warming Solutions Act of 2006 (AB 32)*

The Global Warming Solutions Act of 2006 (AB 32) set the 2020 greenhouse gas emissions reduction goal into law and requires California to maintain and continue reductions beyond 2020. It also directed the California Air Resources Board (ARB) to develop discrete early actions to reduce GHG and prepare a scoping plan to identify how best to reach the 2020 limit.

The AB 32 Scoping Plan (ARB, 2008) identifies the strategies for achieving the maximum technologically feasible and cost-effective economy-wide GHG reductions by 2020, and to maintain and continue reductions beyond 2020. This includes oil and gas measures and regulations to control methane.

The ARB monitors progress in meeting the 2020 limit, and the First Update of the Scoping Plan finds California is on track to meet the near-term 2020 GHG limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32 (ARB, 2014a, ARB, 2014b). The most-recent update is the 2017 Scoping Plan Update, approved on December 14, 2017, which provides the strategy for achieving California's 2030 target (ARB, 2017).

### *Mandatory Reporting of Greenhouse Gas Emissions (17 CCR 95100-95158)*

The ARB Regulation for the Mandatory Reporting of Greenhouse Gas Emissions, or mandatory reporting rule (MRR), applies to entities within certain regulated source categories, including sources related to "Petroleum and Natural Gas Systems" [17 CCR 95150], if combustion or process emissions for the facility exceed 10,000 $MTCO_2e$ per calendar year or if stationary combustion, process, fugitive, and vented emissions equal or exceed 25,000 $MTCO_2e$ or more per year [17 CCR 95151]. Vented emissions are defined as intentional releases of vapors to the atmosphere. Fugitive emissions are defined as unintentional releases of vapors to the atmosphere (ARB, 2013).

### *Cap-and-Trade Program (17 CCR 95800 to 96022)*

The California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (Cap-and-Trade Program) was approved by ARB in October 2011. The Cap-and-Trade Program applies to covered entities that fall within certain source categories, including operators of facilities of Petroleum and Natural Gas Systems [17 CCR 95852(h)] with emissions exceeding 25,000 $MTCO_2e$ in any data year, as

evidenced through the MRR requirements. Fuel suppliers became covered on January 1, 2015 for the 2015 combustion emissions of the fuel delivered to end-users that are not otherwise covered entities in the Cap-and-Trade Program. AB 398, signed on July 25, 2017, extends the Cap and Trade Program to facilitate the State of California meeting its 2030 GHG emissions goals.

#### *California Regulations on Well Stimulation Treatments (SB 4)*

In 2013, Senate Bill Number 4 (SB 4) amended certain portions of the Public Resources Code (the State's laws for the conservation of petroleum and gas) to mandate a regulatory process and an environmental review of well stimulation treatments. The environmental studies required by SB 4 considered atmospheric emissions, including potential GHG emissions and the potential degradation of air quality due to well stimulation treatments, including hydraulic fracturing treatments and acid well stimulation treatments.

# 7. Groundwater Resources

This section provides background information on Federal, State, and local regulations that apply to management of oil and gas resources, including well simulation and hydraulic fracturing, on BLM-administered mineral estate within the CCFO Planning Area. The State of California, through DOGGR enforces State regulations on all oil and gas operations on Public Lands in California. Operators on Federal lands in California are required to obtain permits/approvals, including those for well stimulation treatments, from both DOGGR and BLM.

Senate Bill Number 4 (SB 4, Chapter 313) was signed into State law in 2013 to establish a comprehensive regulatory program for oil and gas well stimulation treatments. As related to oil and gas well stimulation treatments, SB 4 amends Sections 3213, 3215, 3236.5 and 3401 of, and adds Article 3 (Sections 3150 through 3161) to, Chapter 1 of Division 3 of the Public Resources Code (the State's laws for the conservation of petroleum and gas), and adds Section 10783 to Part 2.76 (Groundwater Quality Monitoring) of the State's Water Code. PRC Section 3161 was subsequently amended in 2014 by Senate Bill 861 (Statutes, 2014, Chapter 35). Under SB 4, the State, regional and local agencies are to work in collaboration with DOGGR to establish their respective authority, responsibility, notification, and reporting requirements with respect to well stimulation treatments. The following section provides more detail on regulations that apply to groundwater resources with regard to well stimulation technologies.

### Federal

Two key Federal laws pertaining to groundwater resources are the Safe Drinking Water Act (SDWA) and Clean Water Act (CWA). The SDWA protects drinking water and its sources (rivers, lakes, reservoirs, springs, and groundwater). Under the SDWA, the EPA sets national health-based standards for drinking water and works with states and water suppliers to implement those standards. Private wells that supply fewer than 25 people are not regulated by the SDWA (EPA, 2014c). The EPA regulates waste disposal of flowback fluids and sometimes the injection of fracturing fluids as authorized by the SDWA and CWA.

Protection of underground sources of drinking water is focused in the Underground Injection Control (UIC) program, which regulates the subsurface injection of fluid. Exclusions to UIC authority (SDWA Section 1421(d)) include:

- the underground injection of natural gas for purposes of storage, and
- the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities (EPA, 2014b).

Consequently, hydraulic fracturing is excluded from the SDWA unless diesel fuel is injected, in which case, an authorization through the applicable UIC program is needed. States have the option of requesting regulatory primacy for Class II wells under the SDWA (EPA, 2014a). Class II injection wells inject fluids

associated with oil and gas production into subsurface zones for enhanced oil and gas recovery or wastewater disposal. In California, the State regulates the UIC program as discussed in more detail below.

Under the CWA, states or the EPA have the authority to regulate the discharge of produced waters from hydraulic fracturing operations. Disposal into surface waters is regulated by the National Pollutant Discharge Elimination System (NPDES) permit program (EPA, 2014b). In California, the State Water Resources Control Board (State Water Board) and its Regional Water Quality Control Boards (Regional Water Boards) administer the NPDES program. Section 1786 of the SB 4 Well Stimulation Treatment Regulations prohibits the disposal of flowback water to sumps or pits in California.

The CWA established the basic structure for regulating discharges to navigable waters of the United States. The CWA does not directly address groundwater contamination but contains provisions that can be applicable to groundwater (Quattrocchi, 1996). Attempts to apply CWA authority to prevent groundwater contamination have met with mixed results in the courts. Some courts have ruled that the law specifically excludes groundwater while others say it can be regulated as long as the groundwater is hydrologically connected to jurisdictional surface water (InsideEPA.com, 2013). The CWA provides two general types of water quality control standards:

- Effluent standards, which are technology-derived standards that limit the quantity of pollutants discharged from a point source such as a pipe, ditch, tunnel, etc., into a navigable water body (non-point source pollution is subject to State control); and
- Ambient water quality standards, which are based on beneficial uses and limit the concentrations of pollutants in navigable waters.

The NPDES permitting system was established under CWA Section 402 to regulate discharges from point sources into navigable waters. Management of non-point source discharges is regulated under Section 319 of the CWA. Section 319 requires the states to submit an assessment report that identifies: (1) navigable waters that are not expected to achieve applicable water quality standards or goals, (2) categories of non-point sources or specific sources that add significant pollution that contributes to non-attainment of water quality standards or goals, and (3) the process to develop best management practices and measures to control each category of non-point source or specific sources. The states are then required to develop a management program that proposes to implement the non-point source control program.

Section 305(b) of the CWA requires the states to perform a biannual assessment of the water quality of navigable water within the State. The assessment is required to analyze the extent to which beneficial uses are supported and provide an analysis of the extent to which elimination of pollution and protection of beneficial uses have been achieved. The assessment also is required to describe the nature and extent of non-point sources of pollution and provide recommendations for control programs that include costs.

Section 303(d) of the CWA requires states to identify surface waters that are not expected to meet water quality standards after application of effluent limitations, to develop a priority ranking, and to determine the total maximum daily load (TMDL) of specific pollutants that may be discharged into the water and still meet the water quality standards. Surface water quality regulations are discussed in EIS Section 3.8.

Groundwater quality and groundwater contamination also are managed through the Comprehensive Environmental Response and Liability Act (CERCLA) also known as Superfund (40 CFR Part 300). CERCLA provides funding and enforcement authority for the EPA to conduct hazardous waste site assessment and remediation including groundwater contamination. CERCLA requires the development of a National Priorities List (NPL) that documents contaminated sites at which long-term cleanup is required. Specific site locations can be queried at the EPA Region 9 website.

## State

**Groundwater Law in California.** In California, the State Water Board administers surface water rights law. A water right is legal permission to use a reasonable amount of water for beneficial purposes (State Water Board, 2014). Statutory and case law in California distinguish between groundwater and surface water. Groundwater is considered either percolating or a subterranean stream flowing through known and defined channels (GRA, 2005). The State Water Board issues permits for diversion of subterranean stream water, which generally moves through permeable streambed material following the course of a stream. However, most groundwater in California is considered to be percolating groundwater, which is not regulated by the State Water Board unless it is being used for wasteful or unreasonable purposes or harms State resources, such as fisheries (State Water Board, 2014). Although not regulated by the State, some groundwater use can be regulated by local entities such as a county, groundwater management agency, or Groundwater Sustainability Agency -- under auspices of a formal adjudication and more recently under the guidance provided by the SGMA (see information on 2014 Sustainable Groundwater Management Act below).

Overlying groundwater rights allow a landowner to use percolating groundwater on the overlying property. Overlying rights are usually not limited by history or frequency of use and are considered correlative rights where they are of equal priority to one another. If supply insufficiency exists, the water may be apportioned among the land owners by a court decree (Bartkiewicz, 2006).

If groundwater is used elsewhere, it becomes an appropriative groundwater right; for example, municipal use is considered an appropriative groundwater right. Appropriative rights are limited by historical use and priority is determined on a first-in-time, first-in-right basis between appropriators. Appropriative groundwater rights are junior to overlying groundwater rights (GRA, 2005).

A third type of groundwater right is a prescriptive groundwater right and is acquired by someone who openly uses groundwater from someone who has an existing prior right (GRA, 2005). The use can become a right if it is open, continuous and uninterrupted for a period of five years (Bartkiewicz, 2006).

Groundwater rights can also be quantified through adjudication. State courts and occasionally the State Water Board can adjudicate a groundwater basin if competing demands become too great and lawsuits arise. In an adjudicated basin, water rights are allocated to the users based on complex legal and factual issues. There is one adjudicated basin (Seaside Groundwater Basin, 3-4.08) in the CCFO Planning Area (CDWR, 2015).

**Sustainable Groundwater Management Act.** In September 2014, Governor Brown signed three legislative bills (AB 1739, SB 1168, and SB1319) that together are known as the Sustainable Groundwater Management Act (SGMA). The legislation provides a framework for sustainable management of groundwater resources by local agencies, defined as a local public agency with water supply, water management, or land use responsibilities within a groundwater basin.

The legislation lays out a process and timeline for local agencies to achieve sustainability, including:

- Local agencies must form local groundwater sustainability agencies (GSAs) within two years;
- Local agencies in basins deemed medium- and high-priority and critically-overdrafted must prepare groundwater sustainability plans (GSPs) within five to seven years (depending on the overdraft status of the basin); and
- When plans are in place, local agencies must implement the GSPs and achieve sustainability within 20 years.

The Act does not affect existing federal water rights directly.

A combination of local agencies may form a GSA; if a portion of a groundwater basin is not included within a GSA, the local county is presumed to be the GSA for that area. Federal agencies are invited but not required to participate in GSAs.

The Sustainable Groundwater Management Act is directed at groundwater basins or subbasins that have been designated by CDWR as medium- or high-priority and critically overdrafted through the CASGEM program (see RMPA/EIS Section 3.7.1). Of the 515 groundwater basins in California, 127 were assigned high- and medium-priority (CDWR, 2014a). Of these, basins that have been, or are being, adjudicated are not subject to the entire Act, but have certain reporting requirements.

The legislation also provides local agencies with the tools to achieve sustainability, including specific authorities and procedures. For example, local agencies may:

- Conduct investigations to carry out the requirements of the Act;
- Require registration of wells and measurement of extractions;
- Require annual extraction reports;
- Impose well spacing requirements and limits on extractions from individual groundwater wells;
- Assess fees to implement local groundwater management plans; and
- Request a revision of basin boundaries, including establishing new subbasins.

CDWR has the responsibility to review GSPs for compliance. In basins where (1) a GSA is not formed in a timely manner, (2) a GSP is determined to be inadequate, or (3) groundwater sustainability is deemed unlikely to be achieved, the State Water Board can designate a basin as probationary and intervene with an interim plan to protect groundwater resources.

**Porter-Cologne Water Quality Control Act.** The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) of 1969, which became Division 7 of the California Water Code, authorized the State Water Board to provide comprehensive protection for California's waters through water allocation and water quality protection. The State Water Board implements the requirements of CWA Section 303 (that water quality standards be set for certain waters) by adopting water quality control plans through the Porter-Cologne Act. The Porter-Cologne Act also established the responsibilities and authorities of the State's nine Regional Water Boards. Responsibilities and authorities of individual Regional Water Boards include preparing water quality plans for areas within the region (Basin Plans), identifying water quality objectives (WQOs), and issuing NPDES permits pursuant to the Clean Water Act. WQOs are defined as limits or levels of water quality constituents and characteristics established for reasonable protection of beneficial uses or prevention of nuisance.

California's Antidegradation Policy (Resolution No. 68-16) was adopted in 1968 to protect and maintain existing water quality in California. It is intended to incorporate the Federal antidegradation policy and satisfy Federal regulations requiring states to adopt their own antidegradation policy. It applies to only high-quality waters and is incorporated into the Basin Plans. Existing high-quality water must be maintained to the maximum extent possible. The Antidegradation Policy applies to groundwater and surface water with quality that meets or exceeds WQOs. Several conditions must be met before the quality of high-quality waters may be lowered by waste discharges including the following: provide consistency with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, not result in water quality less than the WQOs, and meet waste discharge requirements that result in best practicable treatment or control of the discharge.

Basin Plans designate beneficial uses for surface and groundwater and establish objectives (narrative and numerical) for protection of the designated beneficial use. Implementation programs to protect beneficial uses and monitoring activities to evaluate the effectiveness are also described in the Basin Plans.

Basin Plans are implemented largely through the NPDES permitting program and updated by TMDL analyses to regulate waste discharges so that water quality objectives are met. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards and an allocation of that load among the various sources of that pollutant.

In addition to implementing the NPDES permitting program, the Porter-Cologne Act authorizes the Regional Boards to issue Waste Discharge Requirements (WDRs) to dischargers of point-source effluent to a surface water body. Generally, WDRs are issued for discharges that are exempt from the CWA NPDES permitting program, discharges that may affect groundwater quality, and/or wastes that may be discharged in a diffused manner. WDRs are established and implemented to achieve the WQOs for receiving waters as established in the Basin Plans. The WDR permit also serves as a federally required NPDES permit (under the CWA) and incorporates the requirements of other applicable regulations.

As of July 1, 2014, the State Water Board also regulates drinking water from public water systems, including groundwater sources, through its new Drinking Water Division. The Drinking Water Division also provides information on drought preparedness, water conservation, and water supply emergency response; oversees water recycling projects; certifies drinking water treatment operators, supports research; and provides funding opportunities for water system improvements including funding under Proposition 84, Proposition 50, and the Safe Drinking Water State Revolving Fund. The drinking water program was previously administered through the California Department of Public Health, Division of Drinking Water and Environmental Management (DDWEM), but was transferred to the State Water Board in July 2014.

**California Groundwater Monitoring Programs.** In addition, the State Water Board is responsible for implementation of California's Groundwater Quality Monitoring Act of 2001. Through a cooperative program with the USGS, the State Water Board has developed the basis for a comprehensive groundwater quality monitoring program that integrates existing water quality monitoring programs and provides the capability of assessing the groundwater quality of each groundwater basin in the State.

In 2009, a bill that developed a statewide groundwater elevation monitoring program was enacted in California. Authorized under SBX7 6, the California Ambient Statewide Groundwater Elevation Monitoring (CASGEM) program provides for the monitoring of groundwater levels by local monitoring entities or the CDWR in each of the State's groundwater basins and subbasins. The objective of the program is to establish a permanent, locally managed program of regular and systematic groundwater elevation monitoring program in all of California's alluvial groundwater basins.

**Drinking Water Source Water Assessment Program (DWSAP).** In response to 1986 amendments and the 1996 reauthorization of the SDWA, states are required to develop a wellhead protection program and a drinking water source assessment program (DWSAP) for wells in public drinking water systems. Two key goals of the programs are to protect and improve drinking water quality and support management of the State's water resources. The program involves the delineation and protection of recharge areas that could impact groundwater in drinking water supply wells. California's DWSAP was first developed and implemented by the Department of Health Services (DHS) Division of Drinking Water and Environmental Management, the lead agency in 1996. The program is now operating under the authority of the State Water Resources Control Board, Division of Drinking Water (DDW). There are 14,326 groundwater sources of drinking water (wells) that are included in the statewide DWSAP, about 1,500 of which are estimated to be within the CCFO Planning Area. Due to security concerns, specific locations of these drinking water sources are not generally available to the public.

**Underground Injection Control (UIC) Program for Class II Wells.** In California, DOGGR regulates wells that inject fluids associated with oil and gas production (Class II injection wells) through its UIC Program. The program is monitored and audited by the EPA under the SDWA. The UIC Program includes permitting, inspection, enforcement, mechanical integrity testing, plugging and abandonment oversight, data management, and public outreach in connection with underground injection activities (DOC, 2014).

Surface disposal is overseen by the Regional Water Boards and disposal of oil field produced water into deep injection wells is overseen by DOGGR.

Aquifers may be designated as "exempt" by the EPA for the purposes of the UIC program only, which allows injection into aquifers. To be eligible for exemption an aquifer must meet criteria set forth in 40 CFR 146.4(a) and either (b) or (c):

*(a) The aquifer does not currently serve as a source of drinking water; and*

*(b) The aquifer cannot now and will not in the future serve as a source of drinking water because:*

- *(1) It is mineral, hydrocarbon, or geothermal energy producing, or can be demonstrated to contain minerals or hydrocarbons that, considering their quantity and location, are expected to be commercially producible; or*
- *(2) It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical; or*
- *(3) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or*
- *(4) It is located over a Class II well mining area subject to subsidence or catastrophic collapse; or*

*(c) The total dissolved solids content of the ground water is more than 3,000 mg/L and less than 10,000 mg/L and it is not reasonably expected to supply a public water system.*

The US EPA has to approve the designation of the exempt aquifers. Details of the UIC program are currently under review by DOGGR and the State Water Board and are subject to revision, including the exemption status of previously exempt aquifers. Based on a January 2017 compliance review update letter from DOGGR and the State Water Board, exemptions for aquifers beneath four oil fields within the CCFO Planning Area are under review: San Ardo, Jacalitos, Coalinga, and Kettleman Hills (DOC and State Water Board, 2017a). Based on a May 2017 compliance update letter (DOC and State Water Board, 2017b), the only aquifer exemptions that have been approved by the EPA are in Kern County. No exempt aquifers have been approved yet within the CCFO Planning Area.

UIC well construction and UIC injection projects are also regulated under 14 CCR 1722.2, 1723.2, 1724.6, 1724.7, and 1724.10. These regulations stipulate the data and analysis that must be approved before any subsurface injection or disposal project can begin. Data include reservoir characteristics, well diagrams (including cement seals), geologic studies, and injection project details. Chemical analyses of the liquid being injected are also required.

**Oil and Gas Well Regulations.** Development, regulation, and conservation of oil and gas resources in the State are addressed under 14 CCR, Chapter 4. These regulations include, among other operations, the construction of oil and gas wells, including those used in well stimulation treatments. Specifically, sections 1722.3 and 1722.4 provide requirements for casing strings and cementing that are protective of groundwater resources. In particular, annular cement seals are required to extend to at least 100 feet above the base of fresh water and at least 500 feet above oil and gas zones. Sections 1723.2 through 1723.8 provide requirements for casing strings and cement plugs for well plugging and abandonment that are protective of groundwater resources. BLM acts as a NEPA lead or responsible agency and consults with DOGGR to facilitate CEQA compliance as appropriate (40 CFR Part 1500).

**Groundwater Monitoring under SB 4.** SB 4 required development of specific well stimulation treatment regulations including groundwater monitoring requirements. Well simulation fluid composition data and electronically submitted water quality data also are required (DOC, 2015). Under SB 4, the State Water Board is required to, and has implemented, the following:

- Consult with DOGGR during DOGGR's development of regulations for well stimulation treatments.
- Enter into a formal agreement with DOGGR regarding roles and responsibilities in the regulation of well stimulation treatments.
- Designate one or more qualified third-party contractors that adhere to board-specified standards and protocols to perform property owner requested water quality sampling and testing. In those areas where BLM is the surface owner, BLM will be notified as appropriate and provided an opportunity to request testing of any existing protected water, whether from a water well or surface waters.
- Audit and review sampling and testing conducted by the third-party contractor(s).
- Develop groundwater monitoring model criteria by July 1, 2015, in consultation with DOGGR and other stakeholders, that outlines groundwater monitoring methods to be used in assessing the potential effects of well stimulation treatments on a well-by-well basis and on a regional scale. The groundwater monitoring model criteria was adopted July 7, 2015.
- Begin implementation of a regional groundwater monitoring program by January 1, 2016, based on the developed criteria (DOC, 2015, Section 10783; State Water Board, 2015). The regional groundwater monitoring program began in August 2014 and conformed to the developed criteria starting in January 2016. The regional groundwater monitoring program is being implemented by the USGS.

The report *Model Criteria for Groundwater Monitoring* (Model Criteria) was adopted by the State Water Board at their July 7, 2015 Board Meeting (State Water Board, 2015). The Model Criteria report describes the methods for assessment, sampling, analytical testing, and reporting of water quality associated with oil and gas well stimulation activities. The criteria are for the monitoring of "protected groundwater" defined as having TDS concentrations less than 10,000 mg/L and outside of exempt aquifers. The groundwater monitoring data will be used to establish baseline conditions prior to well stimulation and to then evaluate data and test results to document water quality changes. Results will be used to determine whether additional monitoring or corrective actions are necessary. The Model Criteria were used by the State Water Board to implement a regional groundwater monitoring program, which began January 1, 2016. The Model Criteria are also being used by oil and gas operators to implement area-specific groundwater monitoring near well stimulation activities. Area-specific groundwater monitoring plans and subsequent groundwater monitoring reports are to be submitted to and approved by the State Water Board. Groundwater monitoring plans are to contain site-specific information including geology, geophysics, hydrogeology, geochemistry, and current and past field operations. Major components of the monitoring program include establishing baseline water quality conditions, identifying a minimum of one upgradient and two downgradient monitoring wells for each aquifer with wells located within 0.5 miles of the surface projection of the zone(s) of stimulation, locating sentry monitoring wells between the stimulated well(s) and drinking water supply wells if the supply wells are within 1 mile of zone of stimulation, and providing maps and cross sections showing various oil field, well and boundary components, among other requirements.

Samples are to be collected before and after well stimulation with area-specific groundwater sampling to occur on a semi-annual basis and analyzed for constituents provided in Table B1 or Table B2 (if potential impacts) of Appendix B of the Model Criteria report or as modified by the State Water Board. Groundwater monitoring reports and associated water quality data are to be submitted to the State Water Board in an electronic format and uploaded to the online GeoTracker groundwater information system.

The regional monitoring program conducted by the State Water Board will be implemented in phases with the first phase taking approximately five years and focusing on identifying vulnerable beneficial use water resources and establishing baseline water quality conditions. The next phase will consist of establishing a vulnerability model to consider ranking levels of relative risk to groundwater resources. The regional monitoring program will characterize and monitor zones of groundwater risk, effects of surface activity, and well integrity and groundwater quality.

### Local

Local agencies also have authority over groundwater resources through three general means:

- Management under the authority granted by the California Water Code or other State statutes
- Local government ordinances or joint powers agreements, and
- Court adjudications.

Many local agencies authorized by statute to provide water have statutory authority to institute some form of groundwater management. In addition, greater groundwater management authority has been granted to 13 special act districts (CDWR, 2014b). Three of these (Monterey Peninsula Water Management District, Pajaro Valley Water Management Agency, and Santa Clara Valley Water District) are within the CCFO Planning Area.

Cities and counties can also manage groundwater through ordinances. More than half of California's 58 counties have ordinances addressing groundwater management. A 1994 California Court of Appeal decision concluded that State law does not prevent cities and counties from adopting ordinances to manage groundwater under their police powers. (*Baldwin v. County of Tehama* (1994) 31 Cal.App.4th 166). However, the extent to which cities and counties can regulate groundwater remains uncertain (CDWR, 2014b). In the CCFO Planning Area, four counties — San Joaquin, San Benito, Monterey, and Fresno — have adopted groundwater ordinances (CDWR, 2003). Three of these ordinances (San Joaquin, San Benito, and Fresno) either prohibit the export of groundwater outside of the basin from which it is extracted or require a permit to do so. The ordinance for Monterey County regulates extraction facilities in zones of groundwater problems including seawater intrusion.

Local agencies have recently been provided considerable new powers, most notably the power to regulate pumping, by the Sustainable Groundwater Management Act (SGMA) as described above. It authorizes designated groundwater sustainability agencies to conduct investigations to carry out the requirements of the act, register wells and monitor pumping, prepare annual extraction reports, impose well spacing requirements and limit pumping, and assess fees to fund groundwater management and replenishment activities, among other actions.

Court adjudications are a result of lawsuits and the groundwater rights of all the overliers and appropriators are determined by the court. There are 23 adjudicated groundwater basins in California and one adjudicated stream system (CDWR, 2015). Within the CCFO Planning Area, only the Seaside Groundwater Basin (portion of CDWR basin designation 3-4.08) in Monterey County is adjudicated. No oil and gas fields or Federal mineral estate overlie the Seaside Groundwater Basin.

## 8. Surface Water Resources

Surface water resources are managed and regulated by Federal, State and local regulations covering water quality, flooding, streambed alteration, and water management. Several regulations governing oil and gas activities cover surface water.

### Federal

**Clean Water Act (CWA) (33 USC Section 1251 et seq.).** Formerly the Federal Water Pollution Control Act of 1972, the CWA was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA, enforced by the EPA, requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). NPDES permitting authority

is delegated to, and administered by, the California State Water Resources Control Board (SWRCB) and its nine regional water quality control boards (RWQCBs).

Discharges from point sources are covered under the Industrial General Permit administered by the RWQCB. Discharges from construction activity are covered under the California General Permit for Discharges of Storm Water Associated with Construction Activity (General Construction Storm Water Permit). Both are described below under the heading State Regulations.

Section 401 of the CWA requires that any activity that may result in a discharge into waters of the U.S. be certified by the RWQCB. This certification ensures that the proposed activity not violate State and/or Federal water quality standards.

Section 404 of the CWA authorizes the U.S. Army Corps of Engineers to regulate the discharge of dredged or fill material to the waters of the U.S. and adjacent wetlands. Discharges to waters of the U.S. must be avoided where possible and minimized and mitigated where avoidance is not possible. Permits are issued by the Corps of Engineers.

Section 303(d) of the Clean Water Act requires states to assess surface water quality and prepare a list of waters (known as the Section 303(d) list of water quality limited segments) considered to be impaired by not meeting water quality standards and not supporting their beneficial uses. Impairment may result from point-source pollutants or non-point source pollutants. The SWRCB, through its nine regional boards, assesses water quality and establishes Total Maximum Daily Load (TMDL) programs for streams, lakes and coastal waters that do not meet water quality standards.

**Bureau of Land Management: Onshore Oil and Gas Operations (43 CFR Part 3160 et seq.).** Regulations administered by the BLM to govern oil and gas operations require that operators conduct operations in a manner which protects the mineral resources, other natural resources, and environmental quality. Before approving any application for permit to drill, the BLM evaluates and considers environmental impacts. Operators are required to exercise care and diligence to assure that leasehold operations not result in undue damage to surface or subsurface resources or surface improvements, including surface water. In California, all produced water must be disposed of by injection into the subsurface, by approved pits, or by other methods which have been approved by the authorized officer. Upon the conclusion of operations, the operator must reclaim the disturbed surface in a manner approved or reasonably prescribed by the BLM. Spills or leakages of oil, gas, produced water, toxic liquids, or waste materials, and blowouts are reported to the BLM. Operators are required to control and remove pollutants that could affect surface waters.

The BLM has designed its current regulations (set out at 43 CFR 3162.3–1 and Onshore Oil and Gas Orders 1, 2, and 7) to ensure the environmentally responsible development of oil and gas resources on Federal and Indian lands. Existing regulations establish that the BLM has authority to regulate oil and gas operations within its administrative areas and set forth rules for the approval and conduct of these operations. Relevant to surface waters, existing regulations require:

- Identification and documentation of surface waters and water supply in the application process.
- Restoration of disturbed areas.
- Waste handling requirements.
- Disposal of produced water into injection wells, lined pits with freeboard, or to surface water under an NPDES permit.
- Avoidance of riparian areas, floodplains, lakeshores, and/or wetlands except as approved in a plan of operations.

- Disclosure of information concerning the source and location of water supply, such as reused or recycled water, rivers, creeks, springs, lakes, ponds, and water supply wells, and the anticipated access route and transportation method for all water planned for use in drilling.
- A surface plan of operation.

**National Flood Insurance Act/Flood Disaster Protection Act.** The National Flood Insurance Act of 1968 made flood insurance available for the first time. The Flood Disaster Protection Act of 1973 made the purchase of flood insurance mandatory for the protection of property located in Special Flood Hazard Areas. These laws led to mapping of regulatory floodplains and to local management of floodplain areas according to Federal guidelines that prohibit or restrict development in flood hazard zones. Local management of flood areas is described further under Local Regulations below.

**Section 438 of the Energy Independence and Security Act of 2007 (EISA).** Congress enacted Section 438 of the EISA to require federal agencies to reduce stormwater runoff from federal development projects to protect water resources. Executive Order 13514 required the U.S. Environmental Protection Agency to publish "Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act" (USEPA, 2009), which provides a step-by-step framework to help federal agencies maintain pre-development site hydrology. The Technical Guidance provides background information, key definitions, case studies, and guidance on meeting the EISA requirements by using a variety of stormwater management practices.

**Executive Order 11988, Floodplain Management** requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

**Executive Order 11990, Protection of Wetlands**. The purpose of Executive Order 11990 is to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands". To meet these objectives, the Executive Order requires federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided.

**Federal Reserved and Appropriative Water Rights (BLM Water Rights Manual 7250)** may give the BLM rights to certain unappropriated water in the amount necessary for a specific Federal purpose, or the BLM may have appropriative rights under the state administrative system.

## State

**California Streambed Alteration Agreement.** Sections 1600–1616 of the California Fish and Game Code require that any entity that proposes an activity that will substantially divert or obstruct the natural flow of any river, stream or lake, substantially change or use any material from the bed, channel, or bank of any river, stream, or lake, or deposit material where it may pass into any river, stream, or lake, must notify the California Department of Fish and Wildlife (CDFW). If the CDFW determines that the alteration may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement (LSAA) shall be prepared. The LSAA includes conditions necessary to protect those resources. The Agreement applies to any stream including ephemeral streams and desert washes.

**California Porter Cologne Water Quality Control Act.** The Porter Cologne Water Quality Control Act of 1967, Water Code Section 13000 et seq., requires the SWRCB to adopt water quality criteria to protect State waters. Each RWQCB has developed a Water Quality Control Plan (Basin Plan) specifying water quality objectives, beneficial uses, numerical standards of pollution concentrations, and implementation procedures for Waters of the State. Waters of the State is defined by the Porter Cologne Water Quality Control Act as "any surface water or groundwater, including saline waters, within the boundaries of the

State." General objectives of the Basin Plans state that all waters (of the State) shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal, or aquatic life. The water quality control plans are intended to protect designated beneficial uses of waters, avoid altering the sediment discharge rate of surface waters, and avoid introducing toxic pollutants to the water resource. The Porter Cologne Water Quality Control Act requires anyone proposing to discharge waste that could affect the quality of the waters of the State to report the waste discharge to the appropriate RWQCB.

**SWRCB Storm Water Program General Permit for Discharges of Storm Water Associated with Construction Activity (General Construction Storm Water Permit).** The General Construction Storm Water Permit, required by the Federal Clean Water Act, regulates stormwater runoff from construction sites of 1 acre or more in size. The Construction General Permit is a statewide, standing permit. Qualifying construction activities, which would include oil well projects where total disturbance is 1 acre or greater, must obtain coverage under the permit by filing a Notice of Intent with the RWQCB, and development of and compliance with a Storm Water Pollution Prevention Plan (SWPPP) describing Best Management Practices (BMPs) that the discharger will use to protect stormwater runoff. The SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if BMPs fail to product waters, and a sediment monitoring plan if the site discharges directly to a water body listed on the Section 303(d) list (described below) for sediment.

**SWRCB Industrial Storm Water General Permit.** The Industrial Storm Water General Permit regulates discharges to surface waters associated with industrial activities including those associated with the oil and gas industry. The General Industrial Permit requires the implementation of management measures that will achieve the performance standard of BAT and BCT. The General Industrial Permit also requires the development of a SWPPP and a monitoring plan. Through the SWPPP, sources of pollutants are to be identified and the means to manage the sources to reduce stormwater pollution are described.

**California Code of Regulations Title 23.** Title 23 regulates discharges of hazardous waste to land and establishes waste and site classifications and waste management requirements for waste treatment, storage, or disposal in landfills, surface impoundments, waste piles, and land treatment facilities.

**California Code of Regulations Title 14.** Title 14, Division 2, Chapter 4, of the California Code of Regulations authorizes regulation of onshore oil and gas wells by the California Department of Conservation DOGGR. Relevant provisions specific to surface water resources include a wide variety of water quality protections such as blowout prevention requirements; control, testing and disposal of drilling fluids; spill contingency plans; plugging and abandonment; freshwater protection; oilfield sumps (not permitted in natural drainage channels); secondary containment requirements; tank construction and leak detection; pipeline construction, maintenance and management; oilfield waste and refuse disposal; well site restoration; and special safety devices for wells within 100 feet of any navigable body of water or watercourse.

DOGGR regulations were added to Title 14 to address well stimulation treatments for oil and gas pursuant to California Senate Bill 4 (SB 4), amending Division 3, Chapter 1, of the Public Resources Code. The regulations specify actions that must be complied with prior to, during, and after an oil or gas well is stimulated or hydraulically fractured. The regulations require a variety of surface water protections for well stimulation activities including: disclosure, control and reporting of stimulation additives; development of a water management plan; storage and handling requirements for additives; waste control and disposal requirements; secondary containment requirements; testing, inspection, and maintenance requirements; spill contingency plans; notification and clean up in the event of an unauthorized release; and monitoring requirements.

**California Water Right Law.** California water law is embodied in the California Water Code and the Water Commission Act of 1914. There are two basic kinds of rights to surface water: riparian and appropriative.

Riparian rights usually come with owning a parcel of land that is adjacent to, or contains, a source of water. A riparian right entitles the landowner to use a correlative share of the water flowing past his or her property, and does not require permits, licenses, or government approval. Riparian rights apply only to the water that would naturally flow in the stream, and do not entitle a water user to divert water to storage in a reservoir for use in the dry season or to use water on land outside of the watershed. Riparian rights remain with the property when it changes hands, although parcels severed from the adjacent water source generally lose their right to the water. Riparian rights have a higher priority than appropriative rights, and among themselves, the priorities of riparian right holders generally carry equal weight. During a drought all right holders share the shortage.

Appropriative rights are granted by the SWRCB. Anyone seeking to appropriate surface water must obtain a permit from the SWRCB. Water right permits spell out the amounts, conditions, and construction timetables for the proposed water project. Before the Board issues a permit, it must take into account all prior rights and the availability of water in the basin. The Board also considers environmental impacts and the flows needed to preserve instream uses such as recreation and fish and wildlife habitat. The hierarchy of priorities for appropriative rights is such that in times of shortage the most recent ("junior") right holder must be the first to discontinue use in favor of senior rights holders (SWRCB, 2018).

### Local

The project area includes all or portions of Monterey, Fresno, San Benito, Santa Clara, Santa Cruz, Alameda, Merced, Stanislaus, San Joaquin, Contra Costa, San Mateo, and San Francisco Counties. Cities are primarily in the San Francisco Bay area (San Francisco, Oakland, San Jose, and others), the Monterey Bay area (Santa Cruz, Marina, Monterey and others), and along the Salinas and San Benito Rivers or Pacific Coast (Hollister, Salinas, Soledad, King City, Carmel, and others). Most counties and cities have or are covered by urban water management plans and integrated regional water management plans that describe water planning, sources and supplies, agencies, water demand, water quality, goals and objectives, and other water use issues.

Municipalities operating local municipal storm sewer systems are required to obtain NPDES permits from the RWQCB and develop and implement stormwater management programs to reduce the contamination of stormwater runoff and prohibit illicit discharges.

## 9. Soil Resources

### Federal

**Clean Water Act/National Pollutant Discharge Elimination System.** Stormwater runoff from construction activities can have a significant impact on water quality. As stormwater flows over a construction site, it picks up pollutants like sediment, debris, and chemicals. Polluted stormwater runoff can harm or kill fish and other wildlife. Sedimentation can destroy aquatic habitat and high volumes of runoff can cause stream bank erosion. Under the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) Stormwater program requires operators of construction sites 1 acre or larger (including smaller sites that are part of a larger common plan of development) to obtain authorization to discharge stormwater under a NPDES construction stormwater permit. Implementation of stormwater pollution prevention plans (SWPPP) is the focus of NPDES stormwater permits for regulated construction activities.

Most states, including California, are authorized to implement the Stormwater NPDES permitting program. The United States EPA remains the permitting authority in a few states, territories, and on most land in Indian Country. For construction (and other land disturbing activities) in areas where the EPA is the permitting authority, operators must meet the requirements of the EPA Construction General Permit (CGP).

In California, Stormwater NPDES permits on non-tribal and non-Federal land are overseen by the State of California EPA (CalEPA).

### State

The California State Water Resource Control Board (SWRCB) administers the Stormwater NPDES program in California. The SWPPP must list Best Management Practices (BMPs) the discharger will use to protect stormwater runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for non-visible pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body.

### Local

Local city and county General Plans and/or SOAR (Save Open-Space & Agricultural Resources) Initiatives may provide regulations or guidelines relating to soil resources as it applies to agriculture.

## 10. Biological Resources – Vegetation

There are several Federal directives that guide BLM management of vegetation resources. These include:

### Federal

**National Environmental Policy Act (42 USC Section 4321 et seq.).** Directs Federal policy regarding environmental protection, including requirements for Federal agencies to evaluate and publicly disclose the environmental effects of proposed projects in published documents such as environmental assessments or environmental impact statements (EISs).

**Federal Land Policy and Management Act (43 USC Sections 1701–1787).** Directs management of public lands managed by the BLM; addresses land use planning, rights-of-way, wilderness, and multiple use policies.

**Wilderness Act (16 USC Sections 1131-1136).** The 1964 Federal Wilderness Act provides for the designation of wilderness: Federal lands permanently preserved and protected in their natural condition. These lands are part of the National Wilderness Preservation System and are managed by the BLM, USFS, U.S. Fish and Wildlife Service (USFWS), and NPS.

**Plant Protection Act (7 USC Section 7701 et seq.).** Prevents importation, exportation, and spread of pests that are injurious to plants, and provides for the certification of plants and the control and eradication of plant pests. The Act consolidates requirements previously contained within multiple Federal regulations including the Federal Noxious Weed Act, the Plant Quarantine Act, and the Federal Plant Pest Act.

**Clean Water Act (33 USC Sections 1251-1387).** The Clean Water Act (CWA) regulates the chemical, physical, and biological integrity of the nation's waters. Section 401 of the CWA requires that an applicant obtain State certification for discharge into waters of the United States. The Regional Water Quality Control Boards administer the certification program in California. Section 404 of the CWA establishes a permit program, administered by the U.S. Army Corps of Engineers (USACE), to regulate the discharge of dredged or fill material into waters of the United States, including wetlands.

**BLM Rangeland Health Standards and Guidelines.** Establishes four fundamentals for managing rangelands and includes soils, species, riparian, and water quality standards. The standards describe the conditions needed to promote and sustain rangeland health and apply to all land uses.

**Executive Order 13112, Invasive Species.** This order established the National Invasive Species Council and directs Federal agencies to prevent the introduction of invasive species, provide for their control, and

minimize the economic, ecological, and human health impacts caused by invasive species. It also provides that no Federal agency shall authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species and that all feasible and prudent measures to minimize risk or harm will be taken in conjunction with the actions.

**BLM Integrated Vegetation Management Handbook.** Describes a management approach to maintain and restore ecologically diverse, resilient, and productive native plant communities on public lands. Includes best management practices to be used in all programs, as appropriate, to mitigate impacts and achieve vegetation objectives, and describes pest management programs within BLM.

### State

**Lake and Streambed Alteration (Fish and Game Code Sections 1600-1616).** The California Department of Fish and Wildlife (CDFW) regulates project activities that would divert, obstruct or change the natural flow, bed, channel, or bank of any river, stream, or lake.

## 11. Biological Resources – Wildlife Resources

There are several directives that guide BLM management of wildlife resources and habitat. In addition to those listed in Section 3.10.2, these include:

### Federal

**Endangered Species Act (16 USC Sections 1531–1544).** BLM Handbook H-6840. The Endangered Species Act (ESA) establishes legal requirements for the conservation of endangered and threatened species and the ecosystems upon which they depend. The ESA is administered by the U.S. Fish and Wildlife Service (USFWS) for terrestrial species, and by the National Marine Fisheries Service (NMFS) for marine species and anadromous fish. Under the ESA, the USFWS or NMFS may designate critical habitat for listed species. Section 7 of the ESA requires Federal agencies to consult with USFWS or NMFS to ensure that their actions are not likely to jeopardize listed threatened or endangered species, or cause destruction or adverse modification of critical habitat. Section 10 of the ESA requires similar consultation for non-Federal applicants.

**Migratory Bird Treaty Act (16 USC 703–712).** The Migratory Bird Treaty Act (MBTA) prohibits take of any migratory bird, including eggs or active nests, except as permitted by regulation (e.g., licensed hunting of waterfowl or upland game species). Under the MBTA, "migratory bird" is broadly defined as "any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle" and thus applies to most native bird species. The MBTA does not cover non-native species such as house sparrows, European starlings, and rock doves.

**Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996.** Establishes procedures designed to identify, conserve, and enhance essential fish habitat (EFH) for those species regulated under a Federal fisheries management plan. EFH includes those waters and substrates necessary for fish to spawn, breed, feed, and grow to maturity. Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include historic areas if appropriate. Freshwater EFH for pacific salmonids includes all those streams, lakes, ponds, wetlands, and other water bodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassible man-made, and long standing, naturally impassable barriers. The act requires Federal agencies to consult with the National Oceanic and Atmospheric Administration Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH.

**Clean Water Act (33 USC Sections 1251–1387).** The Clean Water Act (CWA) regulates the chemical, physical, and biological integrity of the nation's waters. Section 401 of the CWA requires that an applicant obtain State certification for discharge into waters of the United States. The Regional Water Quality Control Boards administer the certification program in California. Section 404 of the CWA established a permit program, administered by the U.S. Army Corps of Engineers (USACE), to regulate the discharge of dredged or fill material into waters of the United States, including wetlands.

**Coastal Zone Management Act (16 USC 1451–1464).** The Coastal Zone Management Act (CZMA) established a Federal and State partnership for coastal resource management. Federal projects must be consistent with the State's certified program. A Federal agency must provide a consistency determination to the Federal Consistency Unit of the California Coastal Commission (which implements the Federal CZMA as it applies to Federal activities in California) no later than 90 days before final approval of the Federal activity.

**Executive Order 13186.** Directs Federal agencies that take actions that have, or are likely to have, a measurable negative effect on migratory bird populations to develop and implement a Memorandum of Understanding (MOU) with USFWS to promote the conservation of migratory bird populations.

**Executive Order 11990, Protection of Wetlands.** This order directs Federal agencies to avoid to the extent possible the long- and short-term adverse impacts from the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.

**Executive Order 11988, Floodplain Management.** This order directs Federal agencies to avoid the long-term and short-term adverse impacts of occupancy and modification of floodplains, and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.

### State

**Birds (Fish and Game Code Sections 3503 and 3513).** The California Fish and Game Code prohibits take, possession, or needless destruction of birds, nests, or eggs except as otherwise provided by the code. Section 3503.5 prohibits take or possession of birds of prey or their eggs, and Section 3513 prohibits take or possession of any migratory nongame bird. Section 3513 provides for the adoption of the provisions of the Federal Migratory Bird Treaty Act (see Section 3.11.2).

## 12. Biological Resources – Special Status Species

There are several Federal and State directives that guide BLM management of special status plant and wildlife resources and their habitat. In addition to those listed in Section 3.10.2 and 3.11.2, these include:

### Federal

**Endangered Species Act (16 USC Sections 1531–1544).** BLM Handbook H-6840. The Endangered Species Act (ESA) establishes legal requirements for the conservation of endangered and threatened species and the ecosystems upon which they depend. The ESA is administered by the U.S. Fish and Wildlife Service (USFWS) for terrestrial species, and by the National Marine Fisheries Service (NMFS) for marine species and anadromous fish. Under the ESA, the USFWS or NMFS may designate critical habitat for listed species. Section 7 of the ESA requires Federal agencies to consult with USFWS or NMFS to ensure that their actions are not likely to jeopardize listed threatened or endangered species, or cause destruction or adverse modification of critical habitat. Section 10 of the ESA requires similar consultation for non-Federal applicants.

**Bald and Golden Eagle Protection Act (16 USC Section 668).** The Bald and Golden Eagle Protection Act (BGEPA) prohibits the take, possession, and commerce of bald eagles and golden eagles. Under the BGEPA and subsequent rules published by the USFWS, "take" may include actions that injure an eagle, or affect reproductive success (productivity) by substantially interfering with normal behavior or causing nest abandonment. The USFWS can authorize incidental take of bald and golden eagles for otherwise lawful activities.

### State

**California Endangered Species Act (Fish and Game Code Section 2050 et seq.).** The California Endangered Species Act (CESA) prohibits take of State-listed threatened or endangered species, or candidates for listing, except as authorized by CDFW. Authorization may be issued as an Incidental Take Permit or, for species listed under both CESA and the Federal ESA, through a Consistency Determination with the Federal incidental take authorization.

**Fully Protected Designations (Fish and Game Code Sections 3511, 4700, 5050, and 5515).** The California Fish and Game Code designates 36 fish and wildlife species as "fully protected" from take, including hunting, harvesting, and other activities. The CDFW may only authorize take of designated fully protected species through a natural community conservation plan (NCCP) or for necessary scientific research.

**Protected Furbearers (California Code of Regulations Title 14 Section 460).** Title 14 specifies that "[f]isher, marten, river otter, desert kit fox and red fox may not be taken at any time." The CDFW may permit capture or handing of these species for scientific research, but does not issue Incidental Take Permits for other purposes.

**Native Plant Protection Act (Fish and Game Code Sections 1900–1913).** Prior to enactment of CESA and the Federal ESA, California adopted the Native Plant Protection Act (NPPA). CESA (above) generally replaces the NPPA for plants originally listed as endangered under the NPPA. However, plants originally listed as rare retain that designation, and take is regulated under provisions of the NPPA. The California Fish and Game Commission has adopted revisions to the NPPA allowing CDFW to issue incidental take authorization for listed rare plants, effective January 1, 2015. The BLM designates rare plants State-listed under the NPPA as BLM sensitive species.

## 13. Visual Resources

Visual resources on BLM-managed lands are regulated by guidance provided by the BLM's VRM system, as documented in the BLM Handbook H-8410-1 (BLM, 1986). The VRM system facilitates inventory, management, and planning for public lands under its jurisdiction and assigns one of four VRM classes (I through IV) to inventoried lands with specific management prescriptions for each class. VRM classification consists of two stages:

- An inventory of visual resources (VRI) and
- Analysis of the inventory and designation of the management class.

Visual resources are inventoried by rating three factors: Scenic Quality - the visual appeal of a tract of land, Public Sensitivity - measuring public concern for scenic quality, and Distance Zones - determining whether the tract of land is visible from travel routes or observation points. These three factors are overlaid to assign one of four Visual Resource Inventory (VRI) Classes per the VRI Class Matrix) VRI Handbook H-8410-1. The VRI is the primary source of information used during the land use planning process to formulate alternatives and designate one of four Visual Resource Management Class (VRM) objectives (VRM Class I, II, III, IV). VRM Class I provides the greatest level of protection to visual resources while VRM Class IV provides the least. VRM classes and their objectives are designated for all BLM administered lands and defined as follows:

- **Class I Objective:** To *preserve the existing character* of the landscape. The *level of change* to the characteristic landscape *should be very low* and must not attract attention.
- **Class II Objective:** To *retain the existing character* of the landscape. The *level of change* to the characteristic landscape *should be low* and not attract the attention of a casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- **Class III Objective:** To *partially retain the existing character* of the landscape. The *level of change* to the characteristic landscape *should be moderate (or lower*) and may attract the attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- **Class IV Objective:** To manage activities that require *major modification of the existing character of the landscape*. The *level of change* to the characteristic landscape *can be high* and may dominate the view and be the major focus of the viewer's attention. However, every attempt should be made to minimize the effect of these activities through careful location, minimal disturbance, and repeating the basic elements in the predominant natural features of the characteristic landscape.

The VRM class designations for each of the four BLM Management Areas (MAs) in the Planning Area are presented in Table J-2. It should be noted that any BLM-administered lands in the Planning Area not specifically addressed in Table J-2 are presumed to be VRM Class IV.

**Table J-2. Existing VRM Class Designations***

| Management Area | Location with VRM Class I, II, or III Designations | VRM Class and BLM Current Decision |
|---|---|---|
| **VRM CLASS IV STANDARDS APPLY TO ALL BLM-MANAGED PUBLIC LANDS UNLESS OTHERWISE STATED IN THIS TABLE.** | | |
| CENTRAL COAST | Santa Cruz Coast Dairies | Assumed to be VRM Class II (see Section 3.13.4) |
| | Fort Ord National Monument | VRM Class II |
| SAN JOAQUIN | Panoche Hills | VRM Class III<br>▪ Limit communications sites and utility rights-of-way (ROW) to existing locations. |
| | Panoche Hills Wilderness Study Area (WSA) | VRM Class I<br>▪ Panoche Hills WSA is to be managed as VRM Class I until Congress acts to either designate wilderness or release the WSA from wilderness suitability, at which point the area would be evaluated to determine the appropriate VRM designation based on laws, regulations, and policies in place at that time. |
| | Griswold-Tumey Hills | VRM Class III<br>▪ Restrict new facilities to existing routes or established utility corridors. Consider communication sites on a case-by-case basis. |
| | Ciervo Hills | VRM Class III<br>▪ Restrict new facilities to existing routes or established utility corridors. Consider communication sites on a case-by-case basis. |

**Table J-2. Existing VRM Class Designations***

| Management Area | Location with VRM Class I, II, or III Designations | VRM Class and BLM Current Decision |
|---|---|---|
| **VRM CLASS IV STANDARDS APPLY TO ALL BLM-MANAGED PUBLIC LANDS UNLESS OTHERWISE STATED IN THIS TABLE.** | | |
| | Joaquin Rocks | VRM Class II |
| | Coalinga Mineral Springs | VRM Class III<br>▪ Permit no communication sites on Juniper Ridge.<br>▪ Consider utility ROWs on a case-by-case basis (no designated corridors). |
| SALINAS | Sierra de Salinas | VRM Class III<br>▪ Allow communication sites where visual impacts can be substantially reduced or mitigated.<br>▪ Limit dozer use on wildfires and prescribed burns where possible (pending BLM Fire Management Plan). |
| | Ventana (and Silver Peak) Wilderness Area and Pinnacles National Park<br><br>Bear Mountain and Bear Canyon WSAs | VRM Class I<br>▪ While not managed by the BLM, Ventana (and Silver Peak) Wilderness Area and Pinnacles National Park would typically be afforded visual resource protections comparable to BLM's VRM Class I objective by the managing agencies.<br>▪ Bear Mountain and Bear Canyon WSAs are to be managed as VRM Class I until Congress acts to either designate wilderness or release the WSA from wilderness suitability, at which point the area would be evaluated to determine the appropriate VRM designation based on laws, regulations, and policies in place at that time. |
| SAN BENITO | Hernandez Valley, Call Mountain, Laguna Mountain | VRM Class III |
| | Pinnacles National Park and San Benito WSA | VRM Class I<br>▪ While not managed by the BLM, Pinnacles National Park would typically be afforded visual resource protections comparable to BLM's VRM Class I objective by the managing agency.<br>▪ San Benito WSA is to be managed as VRM Class I until Congress acts to either designate wilderness or release the WSA from wilderness suitability, at which point the area would be evaluated to determine the appropriate VRM designation based on laws, regulations, and policies in place at that time. |

*In the event that a river or stream is designated a Wild and Scenic River (WSR) by Congress, the WSR would be managed as VRM Class I.
Source: BLM, 2006 and 2007

# 14. Special Management Areas

During development of a BLM resource management plan (RMP) or an amendment to an existing plan, the BLM must integrate planning for special designations (i.e., SMAs) with the general RMP planning process (BLM, 2009). Each BLM Field Office must ensure that the RMP identifies the objects or resources for which the area was designated and illustrate how those objects or resources are protected by the plan. The RMP must also clearly distinguish between the planning area for the RMP and the planning area for the special designation. Additionally, an integrated planning process should conclude with an independent Record of Decision for both the RMP planning area and the special designation planning area (BLM, 2009).

The CCFO Planning Area is divided into five discrete management areas (MAs): Central Coast MA, San Joaquin MA, Salinas MA, San Benito MA, and Clear Creek MA. The boundaries for these management areas are shown in Figure 3.14-1. While the RMP establishes regulations and policies that guide public land management across the entire CCFO Planning Area, the BLM has also adopted management plans that are specific to a particular SMA and that provide special management guidance for that SMA. The following regulations and policies are applicable to SMAs in the CCFO Planning Area:

## National Monuments

### *California Coastal National Monument Resource Management Plan (September 2005)*

The California Coastal National Monument was established through a Presidential proclamation in January 2000. The California Coastal National Monument RMP provides the guidance, objectives, policies, and management actions for the monument's public lands that are administered by the BLM. The management goals of the RMP include: (1) protect the monument's geological formations and the habitat that they provide for biological resources; (2) protect the monument's scenic and cultural values; (3) provide and promote research opportunities; (4) provide interpretive information and educational initiatives regarding the values and significance of the monument; and (5) coordinate planning and management activities with the monument's numerous jurisdictions. The decisions in the RMP apply only to BLM-managed lands within the boundary of the national monument.

The following management action from the California Coastal National Monument RMP is applicable to oil and gas leasing:

- **AU-GEO-2 (Mineral Removal):** Specific resource protections contained in existing BLM land withdrawals and guidance contained in the Presidential Proclamation prohibit removal of minerals with commercial value from the California Coastal National Monument.

### *Fort Ord National Monument*

In April 2012, a Presidential proclamation established 14,650 acres of Federal lands as the Fort Ord National Monument. The monument currently includes 7,200 acres of BLM-administered land and 7,450 acres of land managed by the U.S. Army. The Army is currently overseeing environmental remediation activities on the Fort Ord land within its jurisdiction. As stated in the proclamation, the Army will transfer this land to the BLM in accordance with a 1995 Memorandum of Understanding (MOU) between these two agencies. The MOU describes the responsibilities of each agency related to such lands, the implementing actions required of each agency, the process for transferring administrative jurisdiction over such lands to the Secretary of the Interior (i.e., BLM), and the processes for resolving interagency disputes. Fort Ord has been withdrawn from mineral entry and mineral leasing.

## National Trails

### *National Trails System Act*

The National Trails System Act of 1968, as amended, instituted a national system of recreation, scenic and historic trails and prescribed the methods and standards to which additional components may be added to the system (16 USC 1241-1251). National recreation trails are established to provide a variety of outdoor recreation uses in or reasonably accessible to urban areas. National historic trails closely follow a historic trail or route of travel of national significance, and are established to protect historic remnants and artifacts for public use and enjoyment. National scenic trails provide maximum outdoor recreation potential, conservation, and enjoyment of the various qualities of the areas they pass through (i.e., scenic, historical, natural, and cultural).

### *National Scenic and Historic Trails Strategy and Work Plan*

In 2006, the BLM approved a National Scenic and Historic Trails Strategy and Work Plan, which provides a framework for the development of program guidance and direction for improved management of its National Trails (BLM, 2006, pg. 7-8). The following objectives and actions from the Trails Strategy and Work Plan would be applicable to the RMPA/EIS:

- **Objective 1:** Establish and implement national policy and guidance to identify and protect trail resources in conjunction BLM's multiple-use mandate.
  - **Action 5 (Develop Manuals or Handbooks):** Develop a series of BLM manuals or handbooks that would address resource assessment, protection, and proper utilization of the National Scenic and Historic Trails. Documents would emphasize and expand proper trail management, address on-the-ground information, reference appropriate existing handbooks, and provide guidance. Topics to be considered would include Trail-specific Best Management Practices (e.g., energy and minerals, livestock grazing, riparian, watershed, fisheries, wildlife, recreation, wilderness, lands and realty).
- **Objective 2:** Ensure National Scenic and Historic Trail management is addressed within the BLM's planning system.
  - **Action 3 (Prepare Management Plan Where Required or Necessary):** Prepare guidance and develop plans as required or needed that consider special management areas along trails (e.g., Areas of Critical Environmental Concern and Special Recreation Management Areas). Consider withdrawals or lease and permit stipulations as management tools.

## Areas of Critical Environmental Concern and Research Natural Areas

### *Areas of Critical Environmental Concern*

An Area of Critical Environmental Concern (ACEC) is defined in FLPMA, Public Law 94-579, Section 103(a) as an area within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards. Restrictions that arise from an ACEC designation are determined at the time the designation is made, and are designed to protect the values or serve the purposes for which the designation was made. The BLM has prepared regulations for implementing the ACEC provisions of FLPMA, which are found at 43 CFR 1610.7-2(b). BLM Manual 1613 (Areas of Critical Environmental Concern) provides policy and procedural guidance on the identification, evaluation, and designation of ACECs (BLM, 1988). The following is a brief summary of the specific planning guidance for each ACEC within the CCFO administrative area.

**Clear Creek Management Area Resource Management Plan.** The Clear Creek MA Resource Management Plan (RMP) provides guidance for the management of approximately 63,000 acres of public lands in

southern San Benito and western Fresno Counties (BLM, 2014a, pg. 1-5). This management area includes the Clear Creek Serpentine ACEC and the Joaquin Rocks ACEC. Objectives and actions from the Clear Creek MA RMP that would be applicable to this RMPA/EIS include:

- **ENERG-DEF1 (Land Use Plan Decision).** Allow no mineral leasing or sales on public lands in the Serpentine ACEC. Recommend withdrawal of the entire 30,000-acre ACEC from locatable mineral entry.
- **ENERG-DEF2 (Land Use Plan Decision).** Allow mineral leasing or sales on public lands outside the Serpentine ACEC, and stipulate that "No Surface Occupancy" is allowed on occupied special status species habitat within oil and gas lease areas.

**Panoche-Coalinga ACEC Management Plan of 1987.** This ACEC management plan provides special guidance for management of the Panoche-Coalinga ACEC. The management plan recognizes significant habitat areas for sensitive plants and animals and recommends measures for their management including guidelines for surface disturbing activities, limitations on grazing, policies for land acquisition, and monitoring requirements.

### *Research Natural Areas*

A Research Natural Area (RNA) is a BLM designation that establishes and maintains lands for the primary purpose of research and education. These areas have one or more of the following characteristics: (1) typical representation of a common plant or animal association; (2) unusual plant or animal association; (3) threatened or endangered plant or animal species; (4) typical representation of common geologic, soil, or water features; or (5) outstanding or unusual geologic, soil, or water features. According to the BLM's Land Use Planning Handbook, RNAs are considered a type of ACEC. The criteria that apply to evaluating existing or proposed ACECs would also apply to RNAs (BLM, 2005).

### Wilderness and Wilderness Study Areas

In 1964, Congress passed the Wilderness Act that established a national system of lands for the purpose of preserving a representative sample of ecosystems in a natural condition for the benefit of future generations. Wilderness Study Areas (WSAs) contain wilderness characteristics such as naturalness, solitude, and opportunities for primitive and/or unconfined recreation and are managed to preserve those values until Congress either designates them as wilderness or releases them for other uses. Until 1976, most land considered for, and designated as, wilderness was managed by the National Park Service and the U.S. Forest Service. With the passage of FLPMA in 1976, Congress directed the BLM to inventory, study, and recommend which public lands under its administration should be designated wilderness. The BLM published its California Statewide Wilderness Study Report in 1991 (BLM, 1991). Areas identified as WSAs are to be managed according to the BLM Manual 6330 (Management of BLM Wilderness Study Areas), until they are designated wilderness or released by Congress (BLM, 2012).

Areas that are designated as wilderness are managed under the provisions of the Wilderness Act of 1964 and their establishing legislation. The following activities are prohibited in Wilderness Areas: commercial enterprises; construction of temporary or permanent roads; use of motorized vehicles and other mechanical transport; aircraft landings; and construction of structures and other installations.

Three categories of exceptions to prohibited activities in Wilderness Areas include:

- **Valid Existing Rights.** Prior existing rights may continue. Discretionary uses that create new rights are not permitted;
- **Administrative Actions.** New roads or commercial roads are not authorized. However, the BLM may re-evaluate and authorize any of the other prohibitions listed above by invoking the "minimum

requirements exception" in order to meet the minimum requirements to administer and protect the lands, and the health and safety of people in the area; and

- **General Allowances.** These are subject to limitations set by the BLM State Director. These allowances may include actions to control fire and insects and diseases and facilitate Federal mineral surveys, livestock grazing, access to landholdings, and commercial services compatible with wilderness values and necessary to realize the recreation or other wilderness character purposes of the land.

### Lands with Wilderness Characteristics

Principal authorities affecting the consideration of lands with wilderness characteristics in the planning process are:

A. FLPMA, 43 U.S.C. 1701 et seq., exclusive of 43 U.S.C. 1782.

B. Wilderness Act of 1964, 16 U.S.C. 1131 et seq.

C. National Environmental Policy Act of 1969, 42 U.S.C. 4321 et seq. (NEPA).

D. Naval Petroleum Reserves Production Act of 1976, 42 U.S.C. 6501 et seq. (NPRPA).

E. Alaska National Interest Lands Conservation Act (ANILCA), Section 1320, 43 U.S.C. 1784.

F. Oregon and California Lands Act of 1937, 43 U.S.C. 1181a-1181j.

G. Council on Environmental Quality (CEQ) Regulations, 40 CFR 1500-1508.

H. BLM Regulations, 43 CFR Part 1600, 43 CFR Part 2360.

I. Department of the Interior (DOI) NEPA Regulations, 43 CFR Part 46.

The primary function of an inventory is to determine the presence or absence of wilderness characteristics.

Per BLM Manual 6310, the inventory will evaluate wilderness characteristics as defined in Section 2(c) of the Wilderness Act and incorporated in FLPMA. In order for an area to qualify as lands with wilderness characteristics, it must possess sufficient size, naturalness, and outstanding opportunities for either solitude or primitive and unconfined recreation. In addition, it may also possess supplemental values.

Per BLM Manual 6320, managing the wilderness resource is part of the BLM's multiple use mission. Consistent with FLPMA and other applicable authorities, the BLM will consider the wilderness characteristics of public lands when undertaking land use planning. Where lands with wilderness characteristics have been identified through the inventory process, this EIS provides a basis for comparing impacts to wilderness characteristics and to other resource values or uses. The range of alternatives includes management actions and restrictions designed to achieve the goals and objectives of the land use plan, and/or protect lands with wilderness characteristics.

### Proposed Recreation Area

H.R. Bill 1838, which was introduced to Congress in April 2015, proposes the establishment of the Clear Creek National Recreation Area across portions of San Benito and Fresno Counties that are currently within the BLM's Clear Creek MA. The proposed recreation area would be managed by the BLM and would allow off-highway vehicle recreation, hunting, and rock and gem collecting. Per H.R. Bill 1838 Section 4(k), all Federal lands within the proposed recreation area would be withdrawn from operation of the mineral leasing, mineral materials, and geothermal leasing laws. This bill has currently been referred to the Subcommittee on Federal Lands (Congress.Gov, 2015). Until such time that the proposed designation for the Clear Creek National Recreation Area is approved by Congress, this proposed recreation area would continue to be managed per the objectives and actions of the Clear Creek MA RMP.

# 15. Cultural and Heritage Resources

**Antiquities Act of 1906 (16 USC 431-433).** The Antiquities Act provides that penalties shall be assessed against "any person who shall appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States" except as granted permission by the appropriate secretary of the department having jurisdiction; authorizes the President to establish national monuments for the preservation of "historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest" on lands owned or controlled by the government; and permits the examination, excavation, or gathering of antiquities from government property by recognized scientific or educational institutions in accordance with uniform rules defined in the act.

**National Historic Sites Act (NHSA) of 1935 (16 USC 46-467).** The NHSA established as a national policy the preservation of historic resources, including historic sites, buildings, and objects of national significance.

**National Historic Preservation Act (NHPA) of 1966.** Under Section 106 of the NHPA, effects of any Federal or federally assisted undertaking on historic properties must be considered and the Advisory Council on Historic Preservation must be afforded a reasonable opportunity to comment on the undertaking before it is approved or licensed or before approving the expenditure of funds on any undertaking that may affect properties listed or eligible for listing in the National Register. Section 110 of the NHPA, as amended, stipulates that each Federal agency shall establish a preservation program for the identification, evaluation, and nomination to the National Register and protection of historic properties. Section 112, as amended, stipulates that the Office of Budget and Management shall establish qualification standards for archeology, architecture, conservation, curation, history, landscape architecture, and planning that must be met by agency personnel or contractors responsible for cultural resources.

**Federal Land Policy and Management Act (FLPMA)** of 1976 (43 USC 1701) obligates BLM in section 202(c)(9) to coordinate planning on public lands with Indian tribes and to ensure consistency between BLM's and the tribes' land use plans to the extent consistent with federal laws and the purposes of FLPMA. Land use plans include resource management plans. Title II of FLPMA directs the preparation and continuing maintenance of an inventory of the public lands, their resources, and other values, open to participation of the public and other governments, including tribes. It provides through planning a means to anticipate conflicts between proposed land uses and tribal issues and concerns, and strive to reduce the number and severity of use conflicts at the implementation stage. It also provides for continuing coordination with Indian tribes regarding the consistency of land use plans, guidelines, and rules and regulations on public land and tribal land.

**Archeological Resources Protection Act (ARPA)** of 1979, as amended (16 USC 470aa–470ll). ARPA imposes both civil and criminal penalties for the excavation or removal of protected resources from Federal or Indian lands without the required permit. Federal land managers are also required to "establish a program to increase public awareness of the significance of the archeological resources located on public lands and Indian lands and the need to protect such resources" (16 USC 470ii).

**American Indian Religious Freedom Act (AIRFA) of 1978 (92 Stat. 469).** AIRFA states, "It shall be the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian… including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rights."

**Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (104 Stat. 3048-3058).** NAGPRA established procedures to determine the ownership and disposition of Native American and native Hawaiian human remains, funerary objects, sacred objects, or objects of cultural patrimony discov-

ered on Federal lands. The law establishes penalties for persons convicted of illegal trafficking in Native American human remains and cultural items and requires Federal agencies to inventory their collections of human remains and associated or unassociated funerary objects, determine ownership, and repatriate cultural items in accordance with the provisions of the law.

**Executive Order 13007, Sacred Sites.** This Executive order directs Federal land managing agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and to avoid adversely affecting the physical integrity of such sacred sites to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions.

**Bureau of Land Management (BLM), National Programmatic Agreement (PA) with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers (2014)** provides program-level directives for implementing Section 106 of the National Historic Preservation Act in consultation with SHPO. A National Programmatic Agreement (PA) among the BLM, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers (NCSHPO) sets forth the manner in which the responsibilities deriving from the NHPA shall be met (BLM, 2012b).

BLM manages cultural resources according to their nature and relative preservation value. These use categories include scientific use, conservation for future use, traditional use, public use, and experimental use or those resources discharged from management (Table J-3).

**Table J-3. Cultural Resource Use Allocations and Desired Outcomes**

| Use Allocation | Desired Outcome |
|---|---|
| Scientific use | Preserved until research potential is realized |
| Conservation for future use | Preserved until conditions for use are met |
| Traditional use | Long-term preservation |
| Public use | Long-term preservation, on-site interpretation |
| Experimental use | Protected until used |
| Discharged from management | Ineligible cultural resources; no use after evaluation/recordation; not preserved |

# 16. Paleontological Resources

Paleontological resources (i.e., fossils) are non-renewable natural resources; when destroyed, they cannot be replaced. As such, paleontological resources are afforded protection under the various Federal, State, and local laws and regulations.

### The Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act (PRPA) (16 United States Code [USC] 470aaa et seq.) was enacted as a result of the passage of the Omnibus Public Lands Management Act (OPLMA) of 2009 (Public Law 111-011, Title VI, Subtitle D). The OPLMA-PRPA requires Federal land management agencies to manage and protect paleontological resources on Federal lands and affirms the authority of existing policies and guidelines already in place (BLM, 2018, 2:3).

### Code of Federal Regulations, Title 43 (43 CFR 8365.1-5)

Under the Title 43, Code of Federal Regulations, Section 8365.1–5, the collection of scientific and paleontological resources, including vertebrate fossils, on Federal land is prohibited. The collection of a "reasonable amount" of common invertebrate or plant fossils for non-commercial purposes is permissible.

### The Archaeological and Historic Preservation Act of 1974 (16 USC 469-469c)

In 1974, this act amended and expanded the Reservoir Salvage Act of 1960; this law provides data preservation through the survey, recovery, and preservation of significant scientific, prehistoric, historic, archaeological, or paleontological data when such data may be destroyed or irreparably lost due to a Federal, federally licensed, or federally funded project (BLM, 2007b, 3.14-1).

## 17. Social and Economic Conditions

### BLM Land Use Planning Handbook, Appendix D

Appendix D (Social Science Considerations in Land Use Planning Decisions) of the BLM Land Use Planning Handbook provides guidance on integrating social science information into the planning process for projects and actions within BLM lands (BLM, 2005). Any information gathered for planning purposes must be considered in the context of BLM's legal mandates. Appendix D provides guidance for effectively integrating social scientific data and methods into the entire planning process. Furthermore, Section IV (Environmental Justice Requirements) of Appendix D provides guidance for assessing potential impacts on population, housing, and employment as they relate to environmental justice. It also describes how variables such as lifestyles, beliefs and attitudes, and social organizations should be considered by the BLM with respect to evaluating potential impacts from a project or action on social and economic conditions, including environmental justice.

### Executive Order 12898

In 1994 President Clinton issued the Executive Order (EO), Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, to focus Federal attention on environmental and human health conditions in minority and low-income communities. EO 12898 promotes nondiscrimination in Federal programs that substantially affect human health and the environment, and it provides information access and public participation relating to these matters. This order requires Federal agencies (and State agencies receiving Federal funds) to identify and address any disproportionately high or adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations. The CEQ oversees Federal compliance with EO 12898.

### Council on Environmental Quality's Environmental Justice Guidance Under the National Environmental Policy Act

To ensure that environmental justice concerns are effectively identified and addressed according to EO 12898, the U.S. CEQ, in consultation with the EPA, has developed guidance to assist all Federal agencies with implementing procedures. According to the CEQ's "Environmental Justice Guidance Under NEPA," agencies should consider the composition of affected areas to determine whether minority or low-income populations are affected by a proposed action, and, if so, whether those environmental effects may be disproportionately high or adverse (CEQ, 1997).

## 18. Transportation and Access

Executive Orders 11644 and 11989 contain guidelines for the controlled use of off-highway vehicle (OHVs) on public lands. These executive orders require that all BLM surface lands be designated as open, closed, or limited for OHV use (43 Code of Federal Regulations [CFR] 8340). In accordance with 43 CFR 8342.1, the BLM's regulations for OHV management, "the authorized officer shall designate all public lands as open, limited, or closed to [OHVs]." As such, all public lands within the CCFO Planning Area have been designated in one of three OHV designation categories.

In 2006, the BLM issued Instruction Memorandum No. 2006-173, which established policy for the use of terms and definitions associated with the management of transportation-related linear features. It also set a data standard and a method for storing electronic transportation asset data. According to the memorandum, all transportation assets are defined as follows:

- **Road:** A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.
- **Primitive Roads:** A linear route managed for use by four-wheel drive or high-clearance vehicles. Primitive roads do not normally meet any BLM road design standards.
- **Trails:** A linear route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

## 19. Lands and Realty

Table J-4 provides a listing of Federal regulations and policies that apply to the BLM's lands and realty program. Additional State and local regulations may also apply to split-estate lands. BLM only has jurisdiction for enforcement of applicable Federal regulations.

**Table J-4. Applicable Plans, Policies, and Legal Authorities in the CCFO Planning Area**

| Plan | Policy / Statute / Regulation | Summary |
|---|---|---|
| ***Federal*** | | |
| Code of Federal Regulations: Leases Permits, and Easements | 43 CFR 2920 | Establishes procedures for processing proposals for non-Federal use of public lands. |
| Recreation and Public Purposes Act | 43 CFR 2912 | Describes the terms and conditions of BLM leases and lease renewals. |
| | 43 CFR 2740 | Describes where and under what circumstances BLM authorizations for use, occupancy, and development (such as major leases and land use permits) may be granted. |
| Federal Land Policy and Management Act of 1976, as Amended | Section 302(b) | In managing public lands, the BLM must regulate the use, occupancy, and development of these lands through easements, permits, leases, licenses, published rules, or other appropriate instruments. |
| | Section 501 | Authorizes Secretary to grant, issue, or renew rights-or-way on public lands. |
| | Section 701(d) | Establishes that this Act does not permit oil shale recovery on any Federal land, other than Federal land that has been leased for the recovery of shale oil under the Act of February 25, 1920. The BLM is responsible for responding to requests regarding development on BLM-administered lands in a manner that balances diverse resource uses |
| Mineral Leasing Act of 1920, as Amended | Sections 13 through 21 | Establishes the authority of the BLM to oversee oil and gas operations on Federal land. |
| Onshore Orders | Orders 1 through 7 | Onshore Oil and Gas Orders implement and supplement the oil and gas regulations found at 43 CFR 3160 for conducting oil and gas operations on Federal and Indian lands. |

# 20. Utility Corridors and Communication Sites

The following regulations and policies are applicable to utility corridors and communication sites in the CCFO Planning Area.

## Energy Policy Act of 2005 – Section 368 Energy Right-of-Way Corridors

Section 368 of the Energy Policy Act (42 USC 15801 et seq.) authorizes the following actions for the secretaries of the departments of Commerce, Defense, Energy, and the Interior: (1) designate corridors for oil, gas, and hydrogen pipelines, and electricity transmission and distribution facilities on Federal land in the 11 contiguous western states; (2) perform any environmental reviews that may be required to complete the designation of such corridors; and (3) incorporate the designated corridors into the relevant agency land use and resource management (or equivalent) plans.

In November 2008, the Department of Energy, the BLM, U.S. Forest Service, Department of Defense, and U.S. Fish and Wildlife Service issued a final West-Wide Energy Corridor Programmatic Environmental Impact Statement (PEIS) that evaluated issues associated with the designation of energy corridors on Federal lands in 11 western states. Based upon the information and analyses developed in that PEIS, the Federal agencies could amend their respective land use plans by designating as an energy corridor one or more of the proposed energy corridors identified in the document (DOE and BLM, 2008).

In order to comply with the 2005 Energy Policy Act, the BLM amended 92 land use plans in the 11 contiguous western states to designate corridors on BLM-administered public lands (BLM, 2009b, pg. 1). The BLM's Approved RMP Amendments/ROD for Designation of Energy Corridors (2009) includes documentation of the BLM's decisions in identifying these energy corridors.

## 43 CFR 2806 – Corridor Designation

Part 2800 (Rights-of-Way, Principles and Procedure) of the Code of Federal Regulations establishes the Department of Interior's management procedures for ROWs. In accordance with Subpart 2806 (Designation of Right-of-Way Corridors), the BLM may designate ROW corridors to include any existing utility corridor that is capable of accommodating an additional compatible ROW. ROW grants would generally be confined to designated corridors, although the BLM may grant separate ROWs outside of a designated corridor if deemed appropriate by the authorized officer.

## Pipeline and Hazardous Materials Safety Administration

The U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) develops and enforces regulations for the safe, reliable and environmentally sound operation of the nations' pipeline transportation system. In PHMSA, the Office of Pipeline Safety ensures safety in the design, construction, operation and maintenance, and spill response planning of oil, natural gas and hazardous liquid transportation per the duties regarding pipeline safety set forth in 49 USC Section 60101 et seq. and 49 CFR Section 190.1. The PHMSA's regulatory oversight of pipelines typically applies to pipelines that contain oil and gas prior to the products being metered and sold. The regulations apply to the owners and operators of the facilities and cover the design, installation, inspection, emergency plans and procedures, testing, construction, extension, operation, replacement, and maintenance of pipeline facilities transporting oil, gas, and hazardous liquid. The regulations require operators of gas pipelines to participate in a public safety program, such as a one-call system that would notify the operator of any proposed demolition, excavation, tunneling, or construction that would take place near or affect the facility.

# 21. Wild and Scenic Rivers

The Wild and Scenic Rivers Act of 1968 established a NWSR System to protect outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values and to preserve the river or river section in its free-flowing condition. The Act purposefully strives to balance dam and other construction at appropriate sections of rivers with permanent protection. To accomplish this, it prohibits Federal support or approval for actions such as the construction of dams or other instream activities that would harm the river's free-flowing condition, water quality, or "outstanding remarkable values." The Act designated a number of river segments for immediate inclusion in the system and prescribed the methods and standards by which other rivers may be added to the system.

Rivers are generally designated by Congress and administered by either a Federal or State agency. Designated segments need not include the entire river and may include tributaries. For federally administered rivers, the designated boundaries generally average one-quarter mile on either bank.

Once a river or river segment is designated, it is added to the NWSR System. The NWSR System consists of three types of rivers:

- **Recreation –** rivers or sections of rivers that are readily accessible by road or railroad, that might have some development along their shorelines, and that might have undergone some impoundments or diversion in the past.
- **Scenic –** rivers or sections of rivers free of impoundments with shorelines or watersheds still largely undeveloped, but accessible in places by roads.
- **Wild –** rivers or sections of rivers free of impoundments and generally inaccessible, except by trails, with essentially primitive watersheds or shorelines, and unpolluted waters.

### Wild and Scenic River Evaluation Process

In accordance with its policy and program direction for Wild and Scenic Rivers (BLM Manual 6400), the BLM identifies and evaluates all rivers on BLM-administered lands to determine if they are appropriate for addition to the Wild and Scenic Rivers System. Ultimately, inclusion in the NWSR System requires action by Congress. Until Congress makes a final decision regarding designation, protective management is afforded to all eligible river segments as necessary to ensure that the existing qualities upon which their eligibility is based are not degraded.

Subject to valid existing rights, the BLM is required to protect the free-flowing characteristics and outstanding remarkable values in the stream corridors. The BLM must also protect the corridor from modifications that would impact the tentative river classification (i.e., change the classification potential from Wild to Scenic, or from Scenic to Recreational). These management restrictions apply only to public lands. Protective management remains in effect until Congress makes a final decision regarding designation.

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